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Analysis of OECD Countries Well-being through Statis Methodology

by

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Master Thesis in Data Analytics - Modelling, Data Analysis and Decision Support System

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Biographical Note

Fabricio Rivadeneira Zambrano was born on 14th of October 1975 and is a native of Chone, city of province of Manabí, Ecuador. He finished the secondary school in the mathematical-physics specialization, in Gonzalo Abad Grijalva Secondary school. He graduated in Systems Engineering at the Eloy Alfaro University in Ecuador, in 2005, and with a passion for Data Analysis, joined the Master's Degree in Modeling, Data Analysis and Decision Support Systems in the School of Economics and Management of the University of Porto (FEP).

He works in the Faculty of Computer Science at the Eloy Alfaro University in Ecuador, since 2006 and complemented his education with other courses about Information Technology in India and USA. He speaks Spanish and has knowledge of English.

I feel that this Master in Portugal represents the opportunity to know more about Fatima and Medjugorje, a gift in my life given by God …

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Abstract

In this thesis we aim to study the evolution of some developed countries and also of some emerging countries that are members of the OECD in what concerns some indicators (variables) of well-being during the period 2011-2015, through the STATIS methodology. This methodology allows to analyze the presence of a common structure in several data tables obtained over time, to identify the differences and similarities along the period of time under study and according to well-being indicators included in the OECD Your Better Life Index, and to analyze the trajectories of the countries.

Keywords: Principal Component Analysis, Statis Methodology, Three-way Data Methods, Well-being Indicators

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CHAPTER 1

Introduction

This section contains the introductory aspects of the thesis, specifically the motivation for choosing the theme and the methodology used, the main proposed objectives for the construction of the complete analysis and the problem description to solve.
It also contains a brief reference to the thesis structure, synthesized by the description of the contents of each chapter.

1.1 Motivation

The process of analyzing data and how to manage that process is very relevant for today's organizations as it can be applied to analyze and improve any type of operation in a variety of domains. Data analysis process leads us towards coherent and useful results.

Various data analysis techniques and algorithms can be used to learn the development of phenomena from raw data and they are very useful nowadays when there are a lot of data around us.

So, currently there are a special interest in the joint analysis of multiple data tables, named several multi-blocks or multi-way analysis. Most of these methods are extensions of Principal Component Analysis.

On the other hand, there is also a global interest in analyzing the well-being evolution of countries.

Thus, the methodology chosen in this thesis is STATIS ('Structuration des Tableaux À Trois Indices de la Statistique' in French or 'Structuring Three-way data sets in Statistics' in English), that is one of the main methods for developing other complex techniques of joint analysis of several data sets, and it is applied in the analysis of the Organisation for Economic Co-operation and Development (OECD) countries using well-being indicators.

1.2 Objectives

Through the joint analysis of multiple data tables using the STATIS methodology, this thesis proposes to analyze a set of tables used to calculate the Better Life Index in OECD countries, in order to know the performance of OECD countries, as well as their trends in the 2011-2015 period.

For that, we used several tables, where each table contains a set of well-being indicators of the OECD countries for a specific year, those indicators represent key factors, like housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, work-life balance. So these eleven topics of the index are currently based on one to four indicators.

Thereby, the main objective of this dissertation is to obtain a structure common of the data tables that best represents the differences and similarities among the years according to the performances of the OECD countries related to the well-being indicators.

This dissertation aims to summarize the information contained in the various data tables and additionally, to analyze trends representing the trajectories of the countries through the years, identifying and explaining what countries are responsible for the differences detected between the various data tables.

1.3 Problem Definition

The statistical online platform of the OECD (OECD, 2015) includes data tables for analyzing the well-being of societies, each table contains between 17 and 24 quantitative variables, and it depends of the availability of the countries in gathering the information. These data from OECD can be presented in a multiblock data structure.
In this thesis, several data tables from OECD countries are considered corresponding to different years, thus the problem in this thesis is defined as three questions:

- How to handle with various data tables that measure sets of well-being indicators collected on the same countries (observations) in some years?

- How to analyze several data tables that have been collected in different moments of time to determine a common structure associated to the OECD countries that best represents similitudes between the different data tables?

- How to compare globally the several data tables and which countries are responsible for the differences detected between the several data tables?

1.4 Thesis Structure

This thesis consists of five chapters that contain the theoretical considerations and the analysis of the results that we consider appropriate to a better understanding of the implemented study. The organization of the thesis is as follows:

The chapter one contains the motivation for selecting the topic and the methodology used, the proposed objectives for the construction of the complete analysis and the problem description to solve.

The chapter two covers some basic definitions and presents an overview of some methodologies for data analysis applied to Multiway Data. Specifically, this chapter refers STATIS and mentions some methodologies and applications derived from this selected methodology. Finally, checks some basic ideas about how to measure the well-being of societies taking into account indicators proposed by the OECD.

The chapter three presents a theoretical approach of the STATIS methodology. It contains the descriptions of the data tables in terms of individuals (countries), variables (indicators) and years under study. It also covers the preliminary analysis of the data tables.

The chapter four contains the main results of applying the methodology to all the data tables in question.

In chapter five some final conclusions are given to highlight the findings of this work.

CHAPTER 2
State-of-the-art

This chapter begins by giving some basic definitions related to several data tables and shows generally as they take different names according to their structure. After, we present an overview of some main methodologies for data analysis applied to one or more data tables. Consequently, STATIS is selected in this chapter, some methodologies are mentioned and applications are derived specifically from this selected methodology.

Finally, some basic ideas are checked about how to measure the well-being of societies taking into account some references proposed by the OECD Better Life Index.

2.1 Some basic definitions

For handling with various data tables there are different procedures, the most basic procedure is to analyze each data table separately but it is obviously hard when there are a lot of data tables, but it is not at all the most convenient procedure, some others try merging all data tables together into one large data set, but of course each procedure has advantages and disadvantages.

So, before to continue with the method that will be applied in this thesis it is important to consider the next basic definitions:

- *Three-way data tables:* There are data tables that can be presented in a (three way, three mode or third dimension) data structure as shown in Figure 2.1. A particular remark is that all the tables must have the two dimensions in common (rows and columns) (Tormod, et al., 2010).

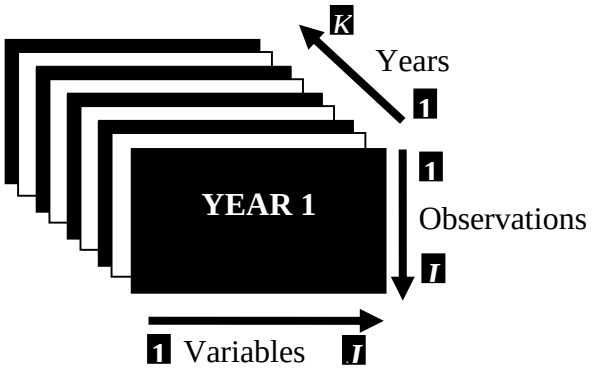


Figure 2.1. General structure of three-way data sets

In Figure 2.1 for each year (*k*), there is a data table consisting of measurements for a number of *J* attributes and a number of *I* observations. In most of the cases, multiway data tables contain the same number of rows and same number of columns.

- *Multi-Block data tables:* They are several data tables that have a common dimension between them, i.e. either the same rows or the same columns, but not necessarily both. Each group of variables, or each matrix, is usually called a block or a configuration and in general is measured on the same observations, as shown in Figure 2.2.

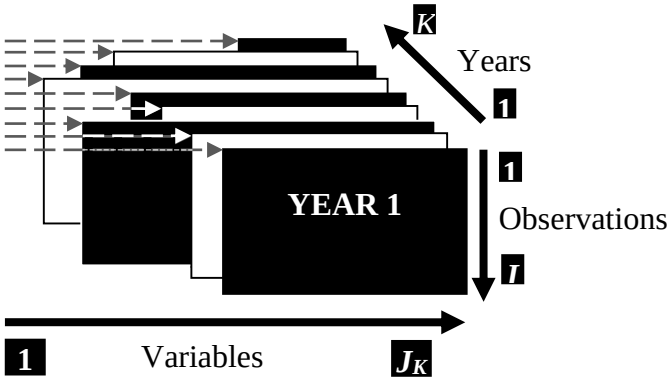


Figure 2.2. General structure of multi-block data tables

In Figure 2.2 for each year (*k*), there is a data table consisting of measurements for a number of J_K attributes, but the number of J_K attributes can vary for each year, and the number of *I* observations remains the same.

- *Unfolding:* It is a way of reordering multiple tables to a pooled matrix as a horizontal or vertical concatenation of matrices (Tormod, et al., 2010). As shown in Figure 2.3 with the same common observations as rows and all tables variables as columns. Figure 2.4 depicts the case of the same common variables as columns and all tables' observations as rows.

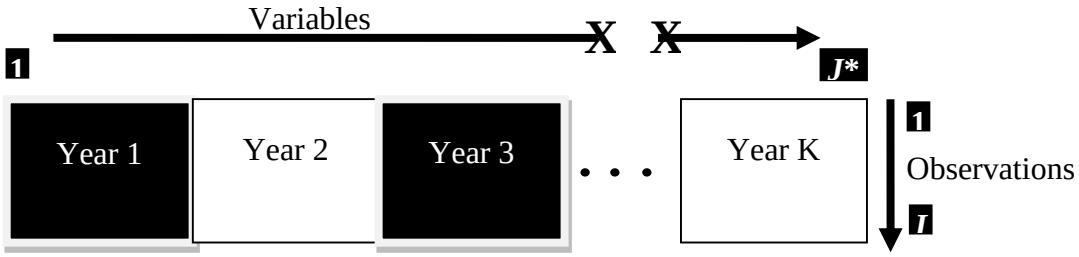


Figure 2.3. The different data tables of the years are put contiguous to each other

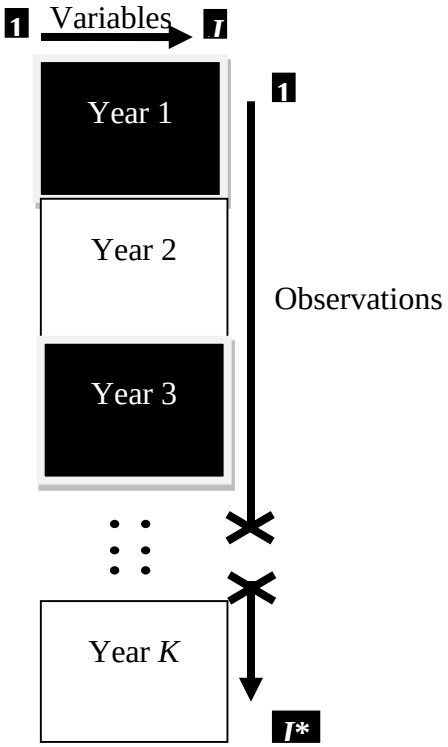


Figure 2.4. The different data tables of the years are put on a stack, whose columns are the same variables

So, in conclusion according to the particular structure of data, the data sets take different names. For instance the Table 2.1 shows some common structures and names, it is a generalization of the classification of Camiz (2001).

Table 2.1. Names of data sets according to particular structure of data

Data Structure	**Name**	**Reference**
A vector	One-way data	(Bro, 1998)
A matrix or a table	Two-way data	(Bro, 1998)
Same observations and different variables	Multiple tables or Multiblock data	(Vivien and Sune, 2009)
Same variables and different observations	Multiple data sets	(Camiz, 2001)
Same observations and same variables	Cubic data, Three-way data or Third order tensor	(Kroonenberg, 2008)
Describe a table structure based on the structure of the other	Instrumental variables	(Camiz, 2001)
Repeated measures data or data indexed by time	Longitudinal data	(Diggle, et al., 2013)
Higher levels of data representation, also known as Multidimensional arrays or N-way arrays or Multiway arrays or tensors.	Four-way data, Five-way data … Multiway data or Tensor data and more than two Multi-block data.	(Smilde, et al., 2004), (Kroonenberg, 2008), (Kolda & Bader, 2009)

Consequently, the methods for analyzing multiblock data are called *multitable* or *multiblock methods*. So, these are methods dedicated to analyze simultaneously several tables of data, like *Multiblock PCA* that applies PCA on a multi-block data.
Therefore, it is important to consider these different structures in order to decide the specific method of data analysis that must be applied such as multiblock methods, 3-way analysis methods, methods on instrumental variables, multiway analysis, and so on.

2.2 Overview of joint Analysis methods of tables

Firstly, the Table 2.2 remembers us the well-known techniques for the analysis of a data table described by numerical or nominal variables.

Table 2.2. Basic techniques for analyzing a data table

Data Structure	Method or Technique	Reference
A data table	Principal Component Analysis (PCA), Factorial Correspondence Analysis, Multiple Correspondence Analysis	(Sharma, 1996) (Lebart, et al., 1995)

Secondly, there are a lot of possible methods that researchers can consider for the analysis of multiple data tables as shown in Table 2.3, divided in two categories: analysis of multi tables or multiblock and three-way data tables, and methods for two or more multi-blocks data and multi-way data, or a combination of both, like two four-way multiblock data. Most of the methods in Table 2.3 are extensions of Principal Component Analysis.

There is other classification about the overview of analysis methods for multi-group data in Eslami, et al. (2013).

Table 2.3. Original methods and obtained of original methods

Data Structure	Method or Technique	Reference
Multiblock or Three-way data	STATIS: Structuring Three-way data sets in Statistics, Dual STATIS	(Lavit, et al., 1994)
	CCSWA: Common Components and Specific Weights Analysis, Dual CCSWA	(Qannari, et al., 2001)
	MUDICA: Multiblock Discriminant Correspondence Analysis	(Abdi, et al., 2010)
	DACP: Double Principal Component Analysis	(Bouroche, 1975)

Table 2.3. Original methods and obtained of original methods (cont.)

Data Structure	Method or Technique	Reference
Multiblock or Three-way data	Multi-Block PCA or Multi-Groups PCA	(Derks, et al., 2003)
	MFA: Multiple Factor Analysis, also called Multiple Factorial Analysis, Dual-MFA	(Escofier and Pagés, 1994)
	GPA: Generalized Procruste Analysis, Dual GPA	(Gower, 1975)
Several Multi-blocks or Multi-way data	GOMCIA: Generalized Orthogonal Multiple Co-Inertia Analysis, it is a Partial Least Squares regression or PLS-based method	(Vivien and Sune, 2009)
	DO-ACT: DOuble-Analyse Conjointe de Tableaux, or Double-STATIS is a generalization of STATIS	(Vivien and Sune, 2009)
	HMFA: Hierarchical Multiple Factor Analysis	(Le Dien and Pagés, 2003)
	MMCovC: Multiway Multiblock Covariate Component	(Smilde, 2000)
	PARAFAC: Parallel Factor Analysis, PARAFAC-family and derivatives models	(Acar and Yener, 2009)
	Tucker, Tucker-family and derivatives models.	(Acar and Yener, 2009)
	Tensor Data Analysis	(Kolda and Bader, 2009)
	STATIS-4 an extension of STATIS and DO-ACT	(Sabatier and Vivien, 2008)

2.3 Related works about STATIS

Based only on STATIS methodology as a common framework, some methods of joint analysis of tables have been developed, like DO-ACT, STATIS-4 and others (Abdi, et al., 2012).

Also there are some applications of this method in several areas, for example: Gonçalves (2010) studied the performance or evolution of economic activities in Portugal analyzing the information obtained along the years by Bank of Portugal and identifying differences and similarities between years and trends over time for those activities; Brás (2012) uses the information provided by the National Statistical Institute of Portugal (INE) and analyzed the evolution of the construction sector in Portugal in order to offer a better understanding of the Portuguese construction sector over the time; Lourenço (2013) analyzed the vulnerability indicators present in the Early Warning Systems (EWS) of European countries, detecting the main economic weaknesses that contributes to predict the occurrence of a crisis in a certain time horizon; Stanimirova, et al. (2004) applied STATIS for the exploration of three-way environmental data, and compares its performance with Tucker3 and PARAFAC2 methods; González, et al. (2005) analyzed the consumption of electrical power in a hotel during the months that the environmental conditions differ the most, to determine the appropriate actions on the way to its saving; Chaya, et al. (2004) applied this methodology for the analysis of time-intensity profiling data, with sensory attributes of ranch salad dressing as variables, and a set of products as objects; Amendola, et al. (2006) studied the causes of the socio-economic disparities among the European regions; Figueiredo, et al. (2012) analyzed the dynamics and evolution of the structural economic reforms during the period 1989 –1996 where the privatization of state-owned enterprises taking place in the Portuguese banking sector.

Almeida (2012) applied a variant of this methodology called Dual STATIS in a data set that records information about cycles of couples with infertility diagnosis of the Assisted Medical Reproduction Center in Oporto Hospital to understand which variables contribute the most to the differences between the groups of couples. The method allowed us to discover a greater proximity between groups composed of couples who are not pregnant and a greater distance between the groups of couples who become pregnant.

Also, Coquet et al. (1996) adapted STATIS, obtaining significant acceleration to study and characterize the internal molecular motions and conformations from a large

number of molecular dynamics sets of coordinates, when simulated in a solution by molecular dynamics techniques.

2.4 OECD and the Better Life Index

There is a lot of interest for determining the well-being of societies, and one of the primary indicators is the Gross Domestic Product (GDP) that is used for measuring the condition of a country´s economy. We use GDP sometimes for judging the success of countries but the problem is that GDP does not include neither a social dimension nor the environmental problems, like air pollution and water quality. GDP is a tool to support us in measuring the economic performance, but it is not a measure of our well-being, so it is necessary to define a different way to measure the success of countries or of our societies, that complements GDP.

Today we have other approaches to measure the success of countries, like the Better Life Index created by OECD and the Social Progress Index created by Social Progress Imperative organization.

The Organization for Economic Co-operation and Development (OECD) has been interested in measuring well-being and the progress of countries taking into account outcomes about people's lives rather than economic aspects, so the OECD since May 2011 has launched the OECD Better Life Initiative. It focuses on eleven aspects or dimensions of life that matter to people to form the OECD well-being framework with a set of well-being indicators as Figure 2.5 depicts (OECD, 2013).

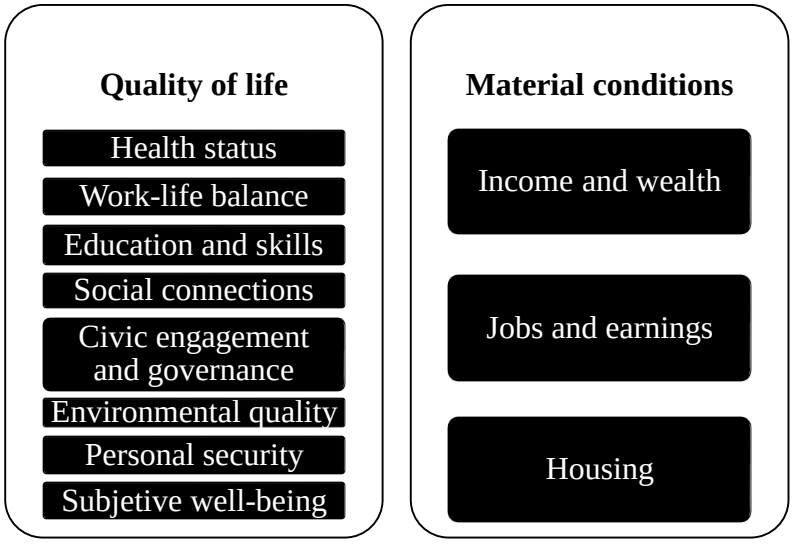


Figure 2.5. The OECD well-being conceptual dimensions. Source: (OECD, 2013)

By using these dimensions with some well-being indicators, the OECD Better Life Initiative has designed an interactive web application called the Better Life Index (BLI) for measuring the many things that improve individual well-being allowing users to set their own weights on the domains and create *Your Better Life Index* by the interactive tool. Additionally it allows people to measure and compare well-being across countries based on those eleven topics essential to the quality of life.

Figure 2.6 shows the interactive tool with flowers representing members of the OECD as well as important partners; each flower has eleven petals one for each dimension in the index. By using interactive tool box, we can begin to create Your Better Life Index according to what is important to us and it is possible to increase or decrease the priority given to each topic by adjusting sliders from the left to right. Countries or flowers that move to the top are the ones that perform best according to priorities we set.

Petals also change the width reflecting the importance we have given each topic to get a clear view of how countries are different to one another. Additionally, once we have created our Better Life Index we are able to compare with those of other users by country and share with other persons.

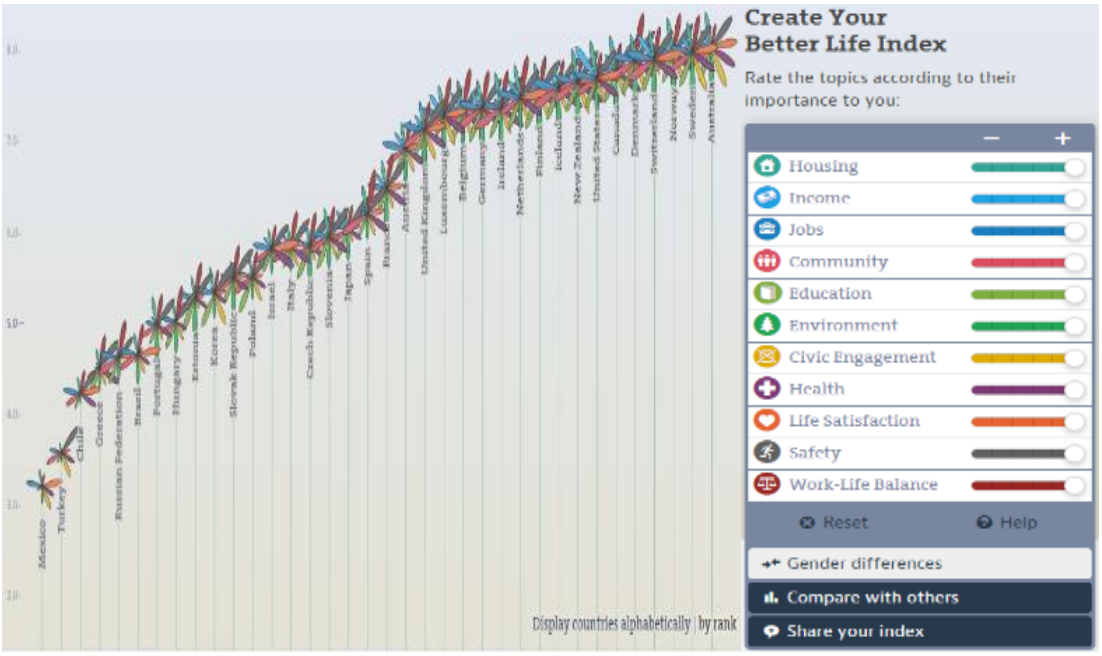


Figure 2.6. The screenshot of Your Better Life Index web application. The screenshot shows the BLI of countries displayed by rank (OECD, 2015)

Since OECD data of countries are essentially multiblock data tables, multiblock component methods can be used for analyzing differences or similarities between OECD tables. In this thesis the *Statis* methodology will be applied.

CHAPTER 3
Methodology and Description of the Data Tables

This chapter presents a brief description of the methodology used in this study. The methodology described in this chapter requires that the individuals must be the same for all data tables. Also the individuals (countries), variables and years under study are presented, and the chapter concludes with a preliminary analysis of the data tables.

3.1 STATIS Methodology

The STATIS methodology was firstly developed in the Statistics and Probability Laboratory of the University of Montpellier II by Escoufier (1973) and his team and by L'Hermier des Plantes (1976) and later developed by Lavit (1988) and Lavit, et al. (1994). It lets you extract information from multidimensional data collected in diverse situations or time instants.

The STATIS methodology can be seen as a three-way exploratory analysis methodology or as an extension of Principal Component Analysis for the analysis of multiple data tables that measure sets of variables collected on the same observations. STATIS does not require the data tables to have the same number of columns. When the data tables have the same columns and not the same rows, the Dual STATIS method can be used.

The STATIS method, is a type of multivariate factorial analysis method and its main goal is to search a common structure between the different data tables. It follows the next steps:

1. STATIS starts with the selection of K data tables collected on the same individuals. Each table (is also called a block, a study, a subtable, a configuration or data set) is a data matrix X_k with dimensions: I x J_k, where I is the number of individuals, observations or a sample (e.g. number of countries in this case) and J_k the number of quantitative variables, measurements or attributes collected on the individuals for the kth table (at time k). Each data matrix can be preprocessed (e.g., centered by column, normalized) separately or on unfolded data, and STATIS may be run with standardized or non-standardized variables.

2. The principal step of the STATIS is called *Interstructure analysis* and compare the spatial distribution of the individuals of the *K* matrices to each other, using the strategy described next.

2.1. To each matrix X_k, we associate its *I* x *I cross-product matrix* defined as

$$W_k = X_k X_k^T, \quad \text{with } k = 1,...,K, \tag{3.1}$$

where 'T' means transpose of a matrix. So, W_k is the cross-product matrix between individuals for the *k*th data table and it is considered as a representative object for this table. Also W_k is considered as a point in the space R^{IxI}.

2.2. To analyze the similarities structure between two matrices W_k and $W_{k'}$ we used the *vector correlation coefficient*, denoted by *RV* coefficient, also called Escoufier's *RV* coefficient, initially introduced by Escoufier (1973), and represents the cosine between matrices, it means the similarity or correlation between squared symmetric matrices, and can be interpreted as a generalization of the squared Pearson correlation coefficient; for the *k*th and the *k´*th data tables, the *RV* coefficient is defined as

$$RV_{k,k'} = \frac{\text{trace}\left(\mathbf{W_k^T W_{k'}}\right)}{\sqrt[2]{\text{trace}\left(\mathbf{W_k^T W_k}\right) * \text{trace}\left(\mathbf{W_{k'}^T W_{k'}}\right)}}, \tag{3.2}$$

and, the term $\text{trace}\left(W_k^T W_{k'}\right)$ defines a scalar product between matrices W_k and $W_{k'}$, called *Hilbert-Schmidt inner product* or H-S inner product, that enable us to determine the distance between the matrices.

This is used to calculate the matrix of *RV* coefficients (*K* x *K*) called *between matrix cosine* or simply *RV matrix* and denoted by C, to analyze the similarities structure of the matrices. The *RV* coefficients are non-negative and ranges between 0 and 1, and the closer *RV* is to 1 means the more similar the two data matrices *k* and *k´* are.

2.3 Perform the eigendecomposition of the *positive semi-definite matrix* C (often called *diagonalization* of C) provides an optimal representation of the relative position of the matrices W_k. A matrix is positive semi-definite when it can be obtained as the product of a matrix by its transpose, this implies the matrix is always symmetric, for instance positive semi-definite matrices include correlation, covariance, and cross-product matrices. Therefore, we can express the matrix C as:

$$C = U\Lambda U^T, \quad \textbf{(3.3)}$$

where U ($U^TU = I$) is the matrix with the normalized eigenvectors of C and Λ the diagonal matrix of the eigenvalues of C.

An element of a given eigenvector represents the projection of one table on this eigenvector. Thus the tables can be represented as points in the eigenspace and their similarities can be visualized in the space, like to perform PCA of the non-centered C matrix, which is called Interstructure analysis. The projections are computed as

$$Y = U\Lambda^{1/2}. \quad \textbf{(3.4)}$$

2.4 Calculate the *Compromise* or *Consensus matrix* (W) which is a weighted average among the *K* tables to be compared, it is computed as

$$W = \sum_{k=1}^{K} a_k W_k , \quad \textbf{(3.5)}$$

where W (*I* x *I*) can be considered as a linear combination of the initial W_k matrices, and a_k is the weight for the *k*th table, it is obtained from the eigenvector associated with the highest eigenvalue of the C matrix, and represents what is common to the different tables or the agreement between tables, where tables with larger weight on the first eigenvector are more similar to the other tables.

3. This step is called *Intrastructure analysis* and perform PCA of compromise matrix that has been defined in the previous step, using the following strategy

3.1. Perform the eigendecomposition of W, again W is a cross-product matrix and therefore its eigendecomposition is equivalent to a PCA and it gives information about the structure or similarities of the set of individuals. Their distribution can be visualized by the principal components and the representation is called *compromise score plot*, so the eigendecomposition of the compromise gives

$$W = V\Theta V^T, \quad \textbf{(3.6)}$$

where V ($V^TV = I$) is the matrix with the normalized eigenvectors of C and Θ is the diagonal matrix of eigenvalues, thus the factor scores of the compromise matrix for the individuals are

$$Y = V\Theta^{1/2}. \quad \textbf{(3.7)}$$

In the Y matrix, each row represents an observation and each column is a component.

3.2. Additionally, it is possible to project each W_k matrix on the compromise plot and develop the trajectories of the individuals. Also is possible integrate the original variables and the factors of the compromise, and plot the variables on the circles of correlations.

A sketch of all these steps is provided in Figure 3.1.

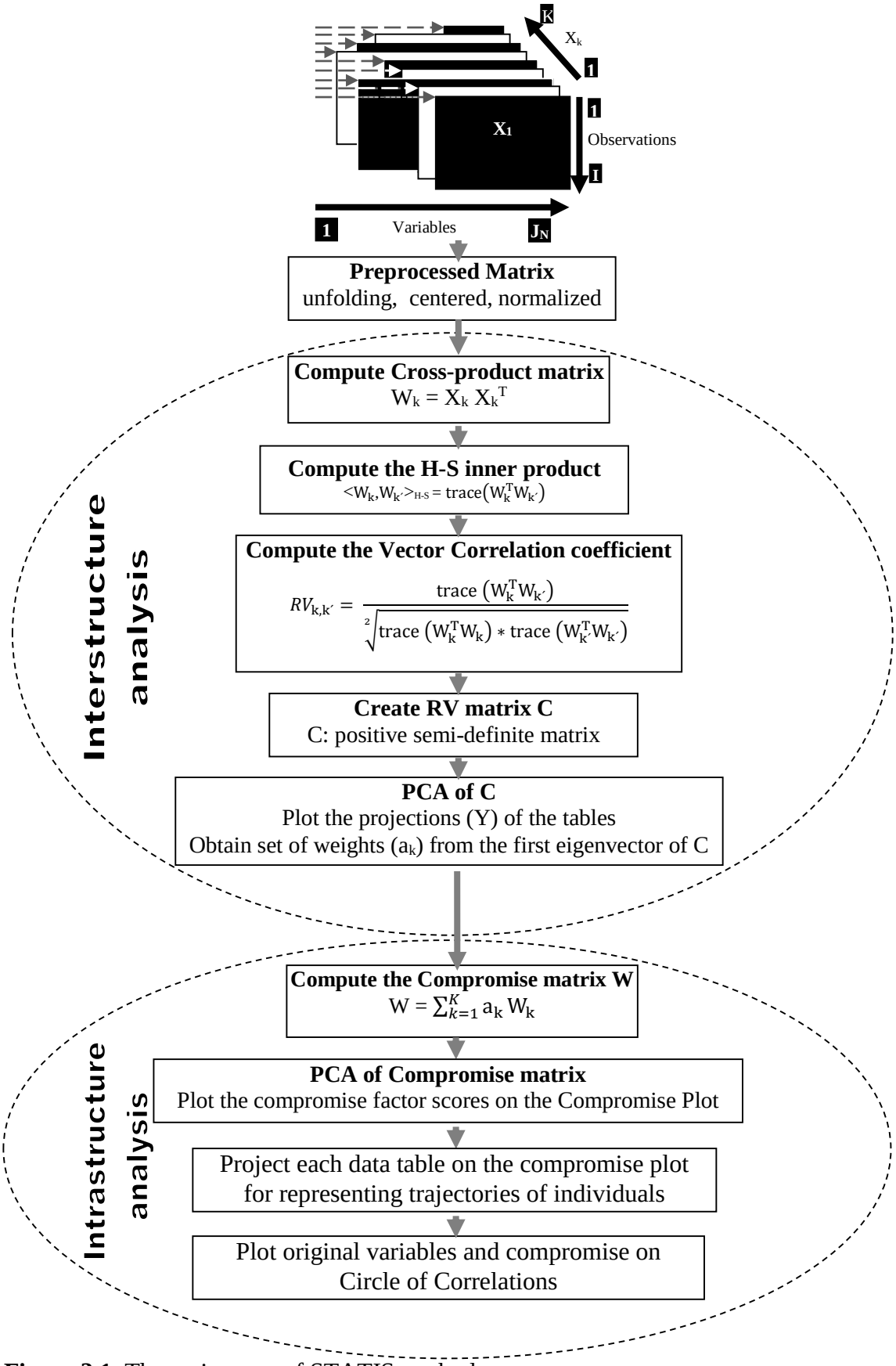


Figure 3.1. The main steps of STATIS method

3.2 Variables and Countries

This thesis uses Better Life Index datasets from the statistical databases online platform of the OECD (OECD, 2015), which includes data for the world's most developed countries and also for some emerging countries that are members of the Organisation for Economic Cooperation and Development, or OECD.

The Better Life Index dataset deals with data pertinent to measure well-being and social progress of the countries. The 34 Member countries are depicted in Table 3.1.

Table 3.1. The OECD Members countries and their ISO codes

Abbreviation	**Countries**	**Abbreviation**	**Countries**
aus	Australia	jpn	Japan
aut	Austria	kor	Korea
bel	Belgium	lux	Luxembourg
can	Canada	mex	Mexico
chl	Chile	nld	Netherlands
cze	Czech Republic	nzl	New Zealand
dnk	Denmark	nor	Norway
est	Estonia	pol	Poland
fin	Finland	prt	Portugal
fra	France	svk	Slovak Republic
deu	Germany	svn	Slovenia
grc	Greece	esp	Spain
hun	Hungary	swe	Sweden
isl	Iceland	che	Switzerland
irl	Ireland	tur	Turkey
isr	Israel	gbr	United Kingdom
ita	Italy	usa	United States

Based on experience, OECD defines 11 dimensions or topics (see Figure 2.5) and these topics of the Index are currently based on one to four indicators, so they are 24 indicators in all for measuring the well-being and social progress of the 34 countries. Within each topic, the indicators are averaged with equal weights. The indicators (variables) are shown in Table 3.2.

Table 3.2. The indicators and a short description

Indicators (Variables name)	**Short description**
HOUSING	
Dwellings without basic facilities (DwoF)	Refers to the percentage of the population living in a dwelling without indoor flushing toilet for the sole use of the household
Housing expenditure (HsEx)	Considers the percentage of the expenditure of households in housing and maintenance of the house
Rooms per person (RmPs)	Refers to the number of rooms in a dwelling divided by the number of persons living in the dwelling
INCOME and WEALTH	
Household net adjusted disposable income (HDIn)	It's the maximum amount (US dollars) that a household can afford to consume without having to reduce its assets
Household net financial wealth (HFWl)	Net financial wealth (US dollars) consists of: currency and deposits, loans, shares and other equity
JOBS and EARNINGS	
Employment rate (Empl)	Percentage of the working-age population (aged 15-64)
Job security (JobS)	Percentage of the employed people

Table 3.2. The indicators and a short description (cont.)

Indicators (Variables name)	Short description
Long-term unemployment rate (LUnp)	Refers to the number of persons who have been unemployed for one year or more as a percentage of the labour force (the sum of employed and unemployed persons).
Personal earnings (PEar)	Refers to the average annual wages. (US dollars)
SOCIAL CONNECTIONS or COMMUNITY	
Quality of support network (QSNw)	It's a measure of perceived social network support. (Percentage)
EDUCATION and SKILLS	
Educational attainment (EdAt)	Percentage of the adult population (aged 25 to 64) holding at least an upper secondary degree
Student skills (SdSk)	Students' average score in reading, mathematics and science as assessed by the OECD's Programme for International Student Assessment (PISA)
Years in education (YsEd)	Average duration (years) of education in which a 5 year old child can expect to enroll during his/her lifetime until the age of 39
ENVIRONMENTAL QUALITY	
Air pollution (AirP)	Micrograms per cubic meters of annual concentrations of particulate
Water quality (WatQ)	Percentage of people's subjective appreciation of the quality of the water.
CIVIC ENGAGEMENT and GOVERNANCE	
Consultation on rule-making (CoRl)	It's a weighted average of yes/no answers to various questions on the existence of law consultation by citizens

Table 3.2. The indicators and a short description (cont.)

Indicators (Variables name)	Short description
Voter turnout (VoTr)	Percentage of people that cast a ballot
HEALTH STATUS	
Life expectancy (LfEx)	Years old on average people could expect to live
Self-reported health (SHth)	Percentage of the population aged 15 years old and over who report "good" or better health.
SUBJETIVE WELL-BEING or LIFE SATISFACTION	
Life satisfaction (LfSa)	Average score of people's evaluation of their life as a whole
PERSONAL SECURITY or SAFETY	
Assault rate (Aslt)	Percentage of people declaring having been assaulted or mugged
Homicide rate (Homd)	Rate of deaths due to assault
WORK-LIFE BALANCE	
Employees working very long hours (EWkL)	Percentage of dependent employed whose usual hours of work per week are 50 hours or more
Time devoted to leisure and personal care (ToLe)	Number of hours per day spent on leisure and personal care

So far, the individuals (34 countries) and variables (24 indicators) have been described, then the 5 data tables used for measuring the well-being of societies came from 2011 to 2015 with the same individuals described by seventeen to twenty-four quantitative variables, are formed as follows:

- The data table from 2011 has 34 individuals or countries presented in rows and 17 variables or indicators presented in columns.

- The data tables from 2012 to 2015 have 34 individuals or countries presented in rows and 24 variables or indicators presented in columns, for each table.

3.3 Preliminary Analysis of the data set

The following tables (Table 3.3 to Table 3.7) represent descriptive statistics for all variables, where each table corresponds to each of the years from 2011 to 2015. In the tables, if the variation coefficient is in bold, that means that the variable has a high dispersion. The variables that are positively skewed have positive skewness coefficient (in bold in the tables) and predominate the low values. The variables with positive kurtosis coefficient (in bold in the tables) indicate that have a distribution more elongated than the normal distribution.

Table 3.3. Descriptive statistics for 2011

Variable	Min.	Max.	Mean	Standard Deviation	Variance	Variation coefficient (%)	Skew-ness	Kurto-sis
Air pollution	10,52	61,55	21,99	10,51	110,51	47,81	**1,73**	**4,63**
Assault rate	1,40	14,80	4,14	2,58	6,66	62,26	**2,46**	**8,28**
Dwellings without basic facilities	0,00	17,10	2,65	4,03	16,28	**152,39**	**2,09**	**4,39**
Educational attainment	28,25	90,90	72,57	16,66	277,72	22,96	-1,40	**1,57**
Employees working very long hours	0,62	45,33	9,86	9,78	95,70	99,23	**2,10**	**4,68**
Employment rate	46,29	78,59	65,66	7,31	53,38	11,13	-0,27	-0,06
Homicide rate	0,00	11,60	2,13	2,36	5,57	**110,66**	**2,74**	**8,15**
Household net adjusted disposable income	8712,33	37684,82	22273,35	6630,87	43968488,72	29,77	**0,04**	-0,16
Household net financial wealth	2366,06	98440,24	35742,86	25608,26	655783132,92	71,65	**0,78**	-0,16
Life expectancy	73,60	82,70	79,20	2,53	6,38	3,19	-1,09	**0,15**
Life satisfaction	4,70	7,80	6,67	0,83	0,70	12,52	-0,74	-0,23
Long-term unemployment rate	0,01	9,10	3,02	2,43	5,88	80,19	**1,09**	**0,43**
Quality of support network	78,80	97,60	91,31	4,95	24,53	5,42	-0,96	**0,23**
Rooms per person	0,70	2,50	1,63	0,47	0,22	28,54	-0,01	-0,86
Self-reported health	31,10	89,70	68,88	14,82	219,66	21,52	-0,93	**0,57**
Student skills	425,27	539,27	493,45	22,88	523,39	4,64	-0,57	**1,59**
Time devoted to leisure and personal care	13,56	16,61	15,17	0,75	0,56	4,94	-0,38	-0,14

Table 3.4. Descriptive statistics for 2012

Variable	Min.	Max.	Mean	Standard Deviation	Variance	Variation coefficient (%)	Skew-ness	Kurto-sis
Air pollution	11,00	62,00	22,03	10,56	111,42	47,92	**1,78**	**4,79**
Assault rate	1,31	10,98	3,98	2,14	4,59	53,87	**1,46**	**2,87**
Consultation on rule-making	2,00	11,50	7,29	2,57	6,63	35,30	-0,23	-0,73
Dwellings without basic facilities	0,00	12,67	2,23	3,34	11,12	**149,66**	**1,93**	**3,08**
Educational attainment	30,00	91,00	73,88	16,41	269,26	22,21	-1,43	**1,59**
Employees working very long hours	0,68	43,00	9,76	9,66	93,39	98,97	**2,02**	**3,90**
Employment rate	46,00	79,00	65,71	7,38	54,52	11,24	-0,26	**0,05**
Homicide rate	0,30	19,00	2,12	3,21	10,29	**151,03**	**4,71**	**24,66**
Household net adjusted disposable income	8618,00	37708,00	22337,15	6720,47	45164783,28	30,09	-0,003	-0,19
Household net financial wealth	2189,00	102075,00	36074,88	25981,77	675052367,93	72,02	**0,87**	**0,11**
Housing expenditure	16,00	29,00	22,09	2,83	8,02	12,82	**0,42**	**0,38**
Job security	5,18	25,80	9,76	4,66	21,76	47,78	**2,03**	**4,47**
Life expectancy	74,30	83,00	79,76	2,41	5,83	3,03	-1,13	**0,24**
Life satisfaction	4,90	7,80	6,67	0,80	0,63	11,95	-0,70	-0,61
Long-term unemployment rate	0,01	9,04	2,99	2,39	5,73	80,23	**1,09**	**0,47**
Personal earnings	11020,00	52607,00	34033,41	11820,54	139725226,92	34,73	-0,35	-0,87
Quality of support network	69,00	98,00	91,18	5,66	32,03	6,21	-2,12	**6,28**
Rooms per person	0,90	2,60	1,65	0,45	0,20	27,20	**0,05**	-0,88
Self-reported health	30,00	90,00	69,68	13,97	195,20	20,05	-0,89	**1,00**
Student skills	420,00	543,00	496,68	26,17	684,95	5,27	-0,86	**1,58**
Time devoted to leisure and personal care	13,56	16,06	14,79	0,66	0,43	4,43	**0,15**	-0,52
Voter turnout	48,00	95,00	73,15	12,41	153,95	16,96	-0,07	-1,06
Water quality	59,00	97,00	85,41	10,47	109,58	12,26	-1,04	**0,51**
Years in education	14,20	19,50	17,26	1,27	1,61	7,35	-0,71	**0,26**

Table 3.5. Descriptive statistics for 2013

Variable	Min.	Max.	Mean	Standard Deviation	Variance	Variation coefficient (%)	Skew-ness	Kurto-sis
Air pollution	9,00	53,00	20,94	9,56	91,39	45,65	**1,35**	**2,32**
Assault rate	1,30	13,10	4,01	2,31	5,31	57,46	**2,03**	**6,37**
Consultation on rule-making	2,00	11,50	7,29	2,57	6,63	35,30	-0,23	-0,73
Dwellings without basic facilities	0,00	12,70	2,13	3,16	9,98	**148,53**	**2,03**	**3,68**
Educational attainment	31,00	92,00	74,50	16,26	264,50	21,83	-1,50	**1,86**
Employees working very long hours	0,66	46,13	10,13	9,99	99,86	98,66	**2,07**	**4,55**
Employment rate	48,00	79,00	66,00	7,35	54,06	11,14	-0,17	-0,42
Homicide rate	0,30	23,70	2,23	3,97	15,74	**177,70**	**5,10**	**27,91**
Household net adjusted disposable income	11039,00	38001,00	22949,47	6693,08	44797288,14	29,16	**0,08**	-0,47
Household net financial wealth	6905,00	115918,00	38251,82	27429,71	752389030,39	71,71	**1,01**	**0,70**
Housing expenditure	16,00	27,00	21,06	2,57	6,60	12,20	**0,34**	-0,09
Job security	4,70	25,80	**10,49**	4,86	23,67	46,38	**1,91**	**3,83**
Life expectancy	74,20	82,80	80,07	2,45	6,00	3,06	-1,18	**0,34**
Life satisfaction	4,70	7,80	6,62	0,86	0,75	13,04	-0,61	-0,65
Long-term unemployment rate	0,01	8,99	3,14	2,62	6,87	83,50	**1,14**	**0,31**
Personal earnings	9885,00	54450,00	34466,00	11837,86	140134949,27	34,35	-0,30	-0,86
Quality of support network	73,00	98,00	89,71	5,86	34,40	6,54	-1,43	**1,60**
Rooms per person	0,90	2,60	1,67	0,43	0,19	25,84	0,00	-0,61
Self-reported health	30,00	90,00	68,59	13,92	193,70	20,29	-0,81	**0,84**
Student skills	420,00	543,00	496,68	26,17	684,95	5,27	-0,86	**1,58**
Time devoted to leisure and personal care	11,73	16,06	14,63	0,86	0,73	5,85	-1,30	**3,35**
Voter turnout	47,00	93,00	71,97	12,18	148,45	16,93	-0,04	-0,73
Water quality	61,00	97,00	84,26	9,32	86,93	11,06	-0,58	-0,17
Years in education	14,90	19,60	17,50	1,20	1,45	6,88	-0,52	-0,09

Table 3.6. Descriptive statistics for 2014

Variable	Min.	Max.	Mean	Standard Deviation	Variance	Variation coefficient (%)	Skew-ness	Kurto-sis
Air pollution	9,00	46,00	20,09	8,39	70,45	41,78	**1,11**	**1,23**
Assault rate	1,30	12,80	3,94	2,20	4,85	55,82	**2,01**	**6,87**
Consultation on rule-making	2,00	11,50	7,29	2,57	6,63	35,30	-0,23	-0,73
Dwellings without basic facilities	0,00	12,70	2,08	3,08	9,52	**148,14**	**2,06**	**3,95**
Educational attainment	32,00	93,00	75,26	15,92	253,29	21,15	-1,54	**1,98**
Employees working very long hours	0,59	43,29	9,86	9,17	84,07	92,97	**2,00**	**4,59**
Employment rate	49,00	80,00	66,29	7,58	57,49	11,44	-0,31	-0,37
Homicide rate	0,30	23,40	2,15	3,97	15,76	**184,41**	**4,94**	**26,57**
Household net adjusted disposable income	12850,00	39531,00	23675,94	6744,92	45493980,18	28,49	**0,23**	-0,56
Household net financial wealth	3317,00	132822,00	39742,29	30091,85	905519452,46	75,72	**1,13**	**1,41**
Housing expenditure	16,00	27,00	21,38	2,34	5,46	10,92	**0,13**	**0,44**
Job security	2,80	17,70	**5,80**	2,85	8,10	49,06	**2,53**	**8,95**
Life expectancy	74,40	82,80	80,08	2,44	5,94	3,04	-1,16	**0,28**
Life satisfaction	4,70	7,80	6,64	0,90	0,81	13,56	-0,74	-0,59
Long-term unemployment rate	0,01	14,37	3,41	3,33	11,12	97,71	**1,74**	**2,88**
Personal earnings	14653,00	54214,00	35192,65	11890,91	141393857,51	33,79	-0,24	-1,13
Quality of support network	68,00	96,00	89,35	6,41	41,14	7,18	-1,79	**3,35**
Rooms per person	1,00	2,50	1,69	0,43	0,18	25,33	-0,04	-0,96
Self-reported health	30,00	90,00	69,03	13,77	189,61	19,95	-0,88	**1,08**
Student skills	417,00	538,00	496,94	26,02	676,84	5,24	-1,02	**1,77**
Time devoted to leisure and personal care	13,42	16,06	14,88	0,56	0,31	3,75	-0,11	**0,83**
Voter turnout	49,00	93,00	71,65	11,47	131,45	16,00	**0,23**	-0,79
Water quality	60,00	97,00	84,56	9,84	96,80	11,64	-0,73	-0,06
Years in education	14,10	19,70	17,49	1,26	1,58	7,20	-0,47	**0,32**

Table 3.7. Descriptive statistics for 2015

Variable	Min.	Max.	Mean	Standard Deviation	Variance	Variation coefficient (%)	Skew-ness	Kurto-sis
Air pollution	9,00	46,00	20,09	8,39	70,45	41,78	**1,11**	**1,23**
Assault rate	1,30	12,80	3,94	2,20	4,85	55,82	**2,01**	**6,87**
Consultation on rule-making	2,00	11,50	7,29	2,57	6,63	35,30	-0,23	-0,73
Dwellings without basic facilities	0,00	12,70	2,04	3,06	9,36	**149,87**	**2,08**	**4,12**
Educational attainment	34,00	94,00	75,71	15,90	252,70	21,00	-1,39	**1,37**
Employees working very long hours	0,45	40,86	9,38	8,44	71,19	89,92	**2,07**	**5,24**
Employment rate	49,00	82,00	66,29	7,80	60,88	11,77	-0,25	-0,21
Homicide rate	0,30	23,40	1,87	3,99	15,96	**213,57**	**5,05**	**27,41**
Household net adjusted disposable income	13085,00	41355,00	24630,18	7101,38	50429550,33	28,83	**0,31**	-0,36
Household net financial wealth	3251,00	145769,00	42340,26	32204,93	1037157628,75	76,06	**1,24**	**1,94**
Housing expenditure	16,00	26,00	21,12	2,36	5,56	11,17	**0,17**	**0,05**
Job security	2,40	17,80	5,75	2,83	7,98	49,11	**2,74**	**9,98**
Life expectancy	74,60	83,20	80,19	2,43	5,88	3,02	-1,16	**0,34**
Life satisfaction	4,80	7,50	6,59	0,80	0,64	12,19	-0,75	-0,52
Long-term unemployment rate	0,01	18,39	3,63	3,98	15,85	109,54	**2,15**	**5,18**
Personal earnings	16193,00	56340,00	37055,18	12724,46	161911774,94	34,34	-0,15	-1,27
Quality of support network	72,00	96,00	89,62	5,25	27,58	5,86	-1,43	**3,10**
Rooms per person	1,00	2,50	1,69	0,42	0,18	25,18	**0,12**	-0,91
Self-reported health	30,00	90,00	68,79	13,77	189,56	20,01	-0,97	**1,37**
Student skills	417,00	542,00	497,15	26,59	706,92	5,35	-0,96	**1,73**
Time devoted to leisure and personal care	13,42	16,06	14,88	0,56	0,31	3,75	-0,11	**0,83**
Voter turnout	49,00	93,00	70,06	12,41	154,00	17,71	**0,13**	-0,83
Water quality	62,00	97,00	83,79	9,64	93,02	11,51	-0,56	-0,66
Years in education	14,40	19,80	17,57	1,29	1,66	7,33	-0,28	-0,07

So, with the location and dispersion measures presented in the Tables 3.3 to 3.7 is possible identify meaningful changes in the variables during the period under study.

First of all, we can see that the variables have different scales of measurement, giving different dispersion measures, so that we need to standardize the variables when applying the Statis methodology.

We can figure out that there is a significant decrease in the mean of the variable Job security between 2013 and 2014, other variables that decrease in the mean between 2011 and 2015 are Air pollution, Dwellings without basic facilities and Homicide rate; and, the variables that increase in mean are Long-term unemployment rate and Personal earnings.

Secondly, using the variation coefficient (CV) we can compare the dispersion of the variables in a manner that does not depend on the variable's measurement unit, where the higher the CV, the greater the dispersion in the variable. Thus, the Tables 3.3 to 3.7 show that the dispersion of most of the variables was relatively high, indicating the differences between countries regarding to the values in each of these variables. During the period under study the variables with greater CV were Air pollution, Assault rate, Dwellings without basic facilities, Employees working very long hours, Homicide rate, Household net financial wealth, Job security and Long-term unemployment rate. Those that showed less CV were Life expectancy, Student skills and Time devoted to leisure and personal care.

Thirdly, with the Tables 3.3 to 3.7 we can analyze the form of the distribution of each variable, measuring its skewness and measuring whether the data have tails heavier or lighter (like flat) relative to a normal distribution, it is the kurtosis. So, the variables with low negative skewness coefficient or negatively skewed distribution are Educational attainment, Life expectancy and Quality of support network. The variables with high positive skewness coefficient or positively skewed distribution are Air pollution, Assault rate, Dwellings without basic facilities, Employees working very long hours, Homicide rate, Household net financial wealth, Job security and Long-term unemployment rate.

The variables with low kurtosis coefficient have flatter distribution, tend to have lack of outliers, these variables are Rooms per person and Voter turnout. The variables with high kurtosis coefficient have heavier distribution, tend to have outliers, these variables are Air pollution, Assault rate, Dwellings without basic facilities, Employees working very long hours, Homicide rate, Household net financial wealth, Job security, Long-term unemployment rate and Quality of support network.

In Figure 3.2 we can see the Boxplots of material conditions variables: Dwellings without basic facilities, Housing expenditure, Rooms per person, Household net adjusted disposable income, Household net financial wealth, Employment rate, Job security, Long-term unemployment rate, and Personal earnings.

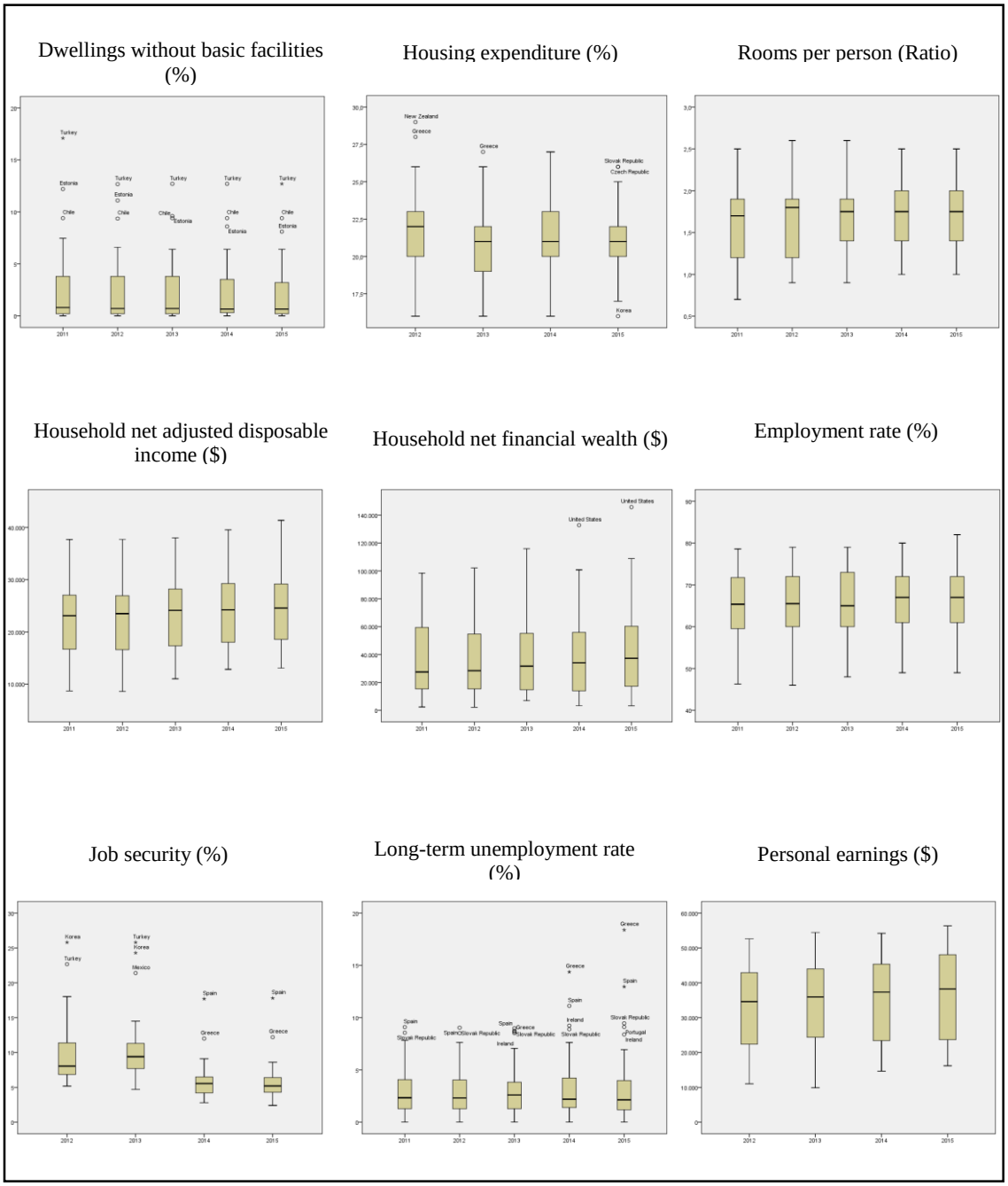


Figure 3.2. Boxplots of Material Conditions variables

In Figure 3.3 we can see the Boxplots of Quality of Life variables: Quality of support network, Educational attainment, Student skills, Years in Education, Air pollution, Water quality, Consultation on rule-making, Voter turnout, Life expectancy, Self-reported health, Life satisfaction, Assault rate, Homicide rate, Employees working very long hours, and Time devoted to leisure and personal care.

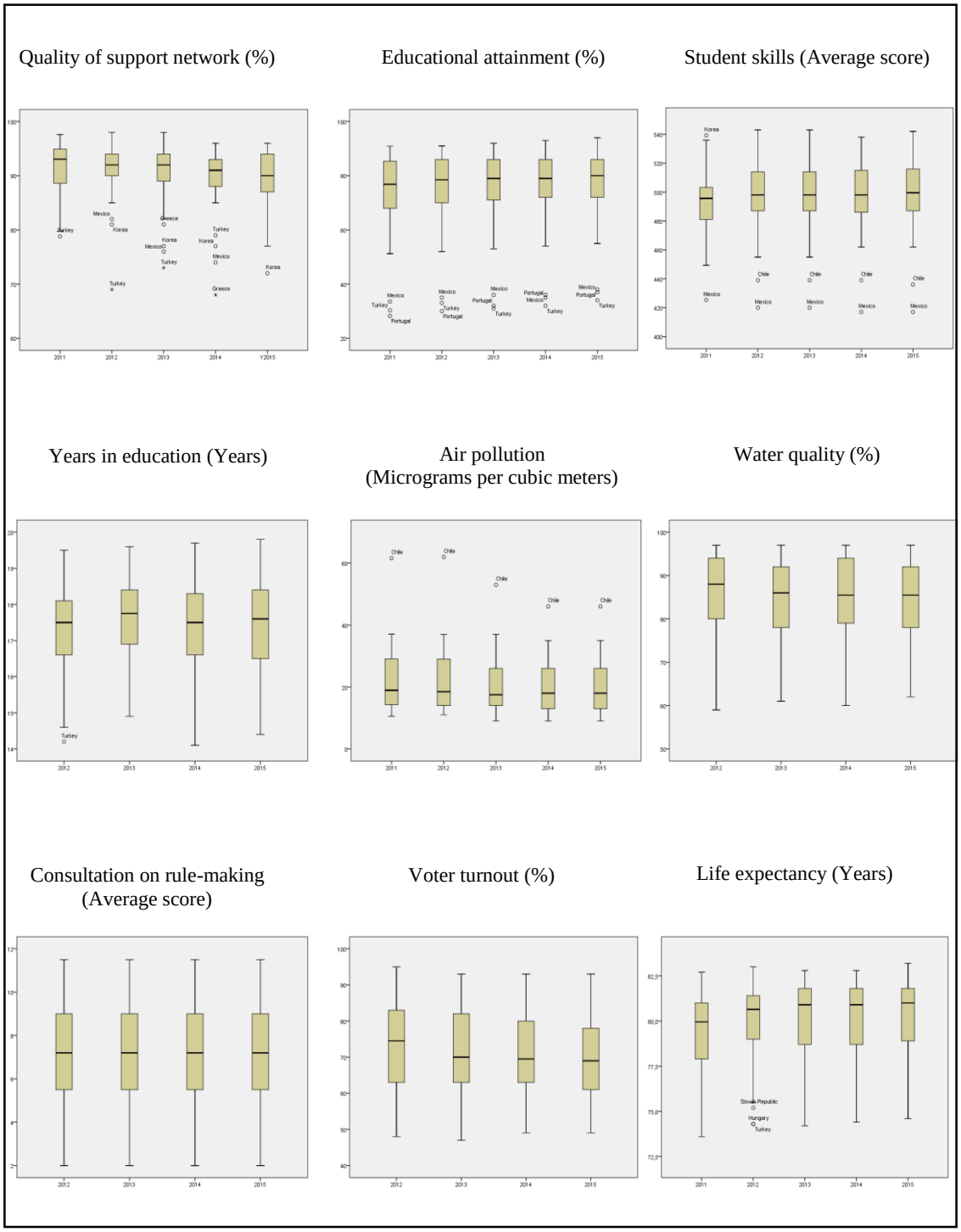


Figure 3.3. Boxplots of Quality of Life variables

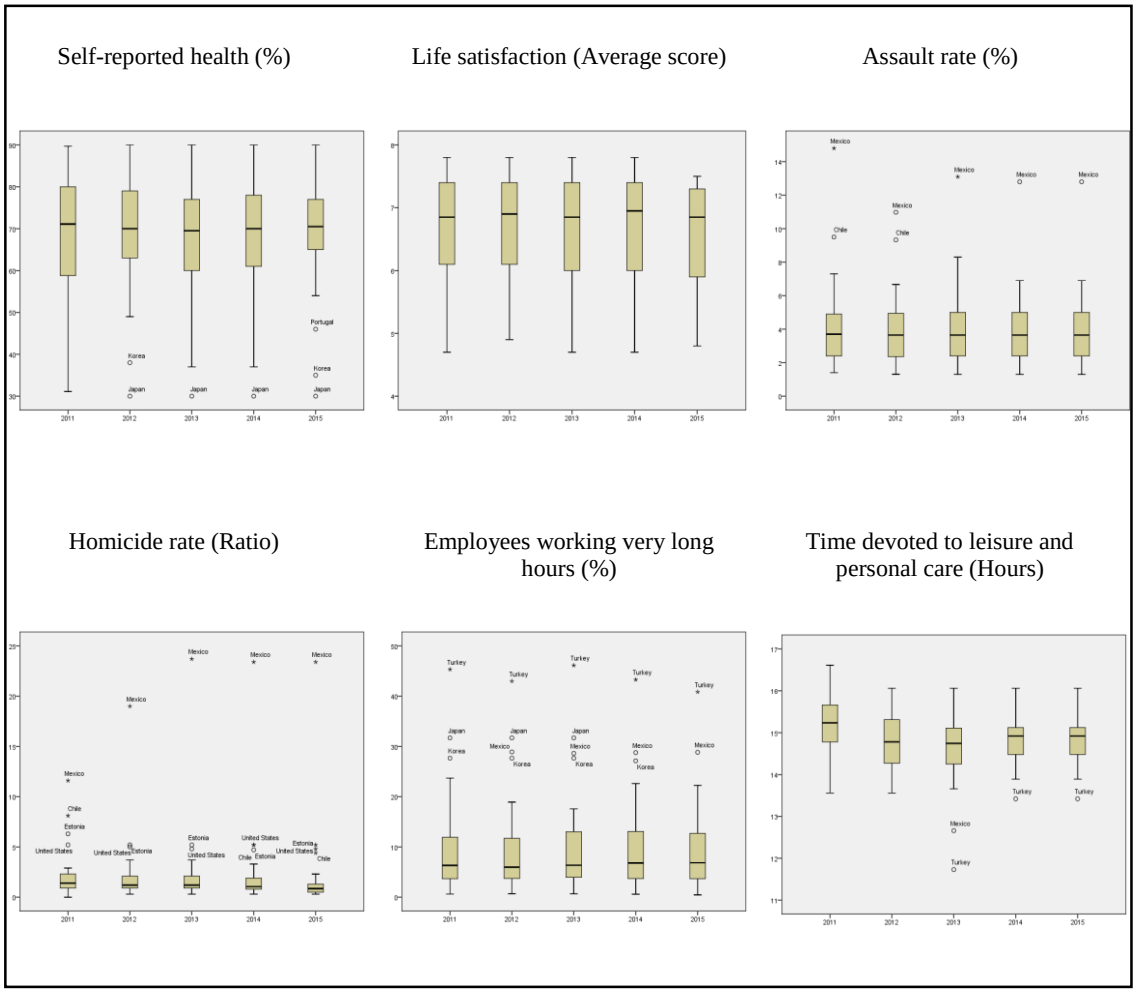


Figure 3.3. Boxplots of Quality of Life variables (cont.)

Through these boxplots (Figures 3.2 and 3.3) we can diagnose the variability or spread of data and identify *moderate outliers* (marked with circle) and *severe outliers* (marked with a star). So, from these boxplots and taking into account the distance between maximum and minimum we can see the dispersion of the variables. Note that the Homicide rate variable is highly concentrated around the median and has 18 outliers during all the period under study.

The country with the highest percentage of dwellings without basic facilities and with employees working very long hours, during all the period is Turkey. For dwellings without basic facilities we have other countries as outliers during all the period, these are Estonia and Chile, and for employees working very long hours the outliers are Japan in 2011-2013, Korea in 2011-2014 and Mexico: 2011-2015.

Also, Turkey presents the lowest value on time devoted to leisure and personal care from 2013 to 2015, on this variable Mexico appears only in 2013.

The variable Job security decreases in the median from 2013 to 2014 and presents the following outliers: Turkey and Korea in 2012-2013, Mexico in 2013, Spain and Greece in 2014-2015.

The variable Long-term unemployment rate has to Spain and Slovak Republic as outliers countries in all the period, Greece and Ireland are outliers from 2013 to 2015 and Portugal in 2015. Note that Greece is an extreme outlier from 2014 to 2015 and Spain in 2015.

The country with the highest value on assault and homicide rate is Mexico. Also Chile was a moderate outlier in 2011 and 2012 on assault rate, and is an outlier during all the period on homicide rate except in 2012. The highest value of air pollution has Chile during all the period. The United States and Estonia are outliers on homicide rate during all the period.

The countries with the lowest average score on student skills are Mexico and Chile during all the period, while Korea was the highest in 2011.

The country with the lowest value from 2012 to 2015 on Self-reported health variable is Japan. Portugal and Korea appears in 2015, like moderate outliers.

The variable Quality of support network has the following countries as outliers: Turkey in 2011-2014, Mexico in 2013-2014, Korea in 2012-2015 and Greece in 2013-2014.

The variable Educational attainment in all the period has the following moderate outliers: Mexico, Portugal and Turkey.

CHAPTER 4
Results of the STATIS Methodology

This Chapter introduces the results obtained by the application of the Statis methodology to the OECD countries in the period under study, considering the indicators (variables) of well-being.

The results are presented following the main steps of STATIS methodology allowing the analysis of a possible common structure for the data tables that best represents the similarities among the years and, the evolution of the OECD countries described by the variables considered in the study. The data were centered and reduced because the variables are heterogeneous, with different units.

4.1. Interstructure

In the first phase of the Statis method we compute the cross-product matrix between countries (individuals) for each data table with their indicators (variables) of well-being as a representative object of each table, corresponding to each year under study. Then, a global comparison between data tables is done using the coefficient of vector correlation (RV coefficient), in which we conclude what years are more similar and what are more different.

So, through the analysis of the Tables 4.1 and 4.2 about the RV coefficients and the Euclidean distances, respectively, we can conclude that the years 2012 and 2013, 2014 and 2015 are the closest, with a RV coefficient of 0,98, and a distance between these years of 0,19 and 0,18 respectively; while the pairs of years 2011 and 2014, 2011 and 2015 are the most different, with a RV coefficient of 0,92, and a distance between these years of 0,41.

Table 4.1. Matrix of the RV coefficients

Years	2011	2012	2013	2014	2015
2011	1,00				
2012	0,95	1,00			
2013	0,94	0,98	1,00		
2014	0,92	0,95	0,97	1,00	
2015	0,92	0,95	0,96	0,98	1,00

Table 4.2. Matrix of the Euclidean distances

Years	2011	2012	2013	2014	2015
2011	0,00				
2012	0,32	0,00			
2013	0,35	0,19	0,00		
2014	0,41	0,30	0,25	0,00	
2015	0,41	0,33	0,29	0,18	0,00

By diagonalization of the matrix of RV coefficients, we obtain a system of axes associated to five eigenvalues as well as the percentage of inertia explained by each axis and the percentage of cumulated inertia (Table 4.3). Thus, from Cattel's and Pearson's criterion we selected the first two components, because the first two components explain 83,55% of the inertia.

Table 4.3. Eigenvalues, Inertia and Cumulative Inertia of the Interstructure

Axes	Eigen-values	Inertia Explained (%)	Cumul. Inertia (%)
1	0,11	55,62	55,62
2	0,06	27,93	**83,55**
3	0,02	8,74	92,29
4	0,01	6,74	99,03
5	0,00	0,97	100,00

So, we can see in the Figure 4.1, in the plan defined by the first and second axes, the short distance between the years 2012 and 2013, 2014 and 2015 which indicates proximity or similarity between these years, while the years 2011 and 2014, 2011 and 2015 are more distant between them, and which show the same results we had from Table 4.1 and 4.2.

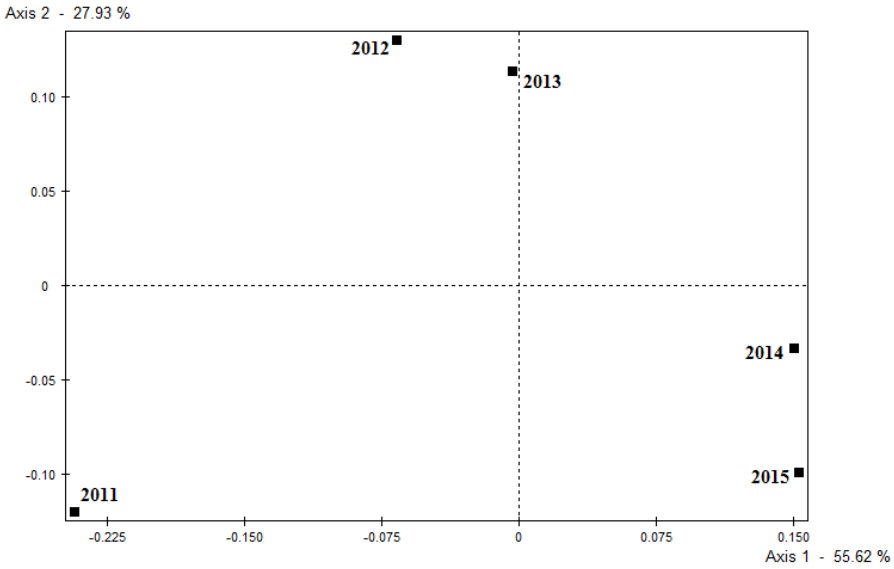


Figure 4.1. Centred Interstructure Euclidean Image

4.2. Intrastructure

In this step, we compute the compromise matrix defined as a linear combination of the objects, weighted by the coordinates of the objects on the first axis of the Interstructure. Table 4.4 contains the scalar products or correlations between normed objects and the Euclidean distances between objects and the compromise, indicating the years closest and the most distant in relation to the compromise.

Thus, through the analysis of the scalar products and the Euclidean distances, we can conclude that the years are highly correlated with the compromise, because in general distances are low and scalar products are high, proving that it is possible to find a common structure; being the year of 2013 the one that has the highest correlation with the compromise, and the year of 2011 the one with the smallest correlation.

Table 4.4. Scalar products and distances to the compromise object

	2011	2012	2013	2014	2015
Scalar Products	0,963	0,985	**0,989**	0,984	0,980
Euclidean Distances	0,272	0,171	0,148	0,180	0,199

Applying PCA to the compromise object, we show in Table 4.5 the eigenvalue associated to each axis, the inertia explained of each axis and the cumulative inertia. From the Cattel's and Pearson's criterion, we considered the first seven axes because the first seven axes explain 79,93% of the total inertia.

Table 4.5. Eigenvalues, Inertia and Cumulative Inertia of the first ten axes

Axes	Eigen-values	Inertia Explained (%)	Cumul. Inertia (%)
1,00	0,89	37,55	37,55
2,00	0,30	12,63	50,18
3,00	0,21	9,11	59,28
4,00	0,15	6,37	65,65
5,00	0,13	5,32	70,97
6,00	0,12	5,07	76,04
7,00	0,09	3,89	**79,93**
8,00	0,09	3,78	83,71
9,00	0,06	2,67	86,38
10,00	0,05	2,14	88,52

Therefore, the following figures: Figures 4.2, 4.3, 4.4, 4.5, 4.6, and 4.7 are the graphical representations for the seven axes, which show the countries' compromise Euclidean image in the plan defined by the first and second axes [1, 2], the first and third axes [1, 3], the first and fourth axes [1, 4], the first and fifth axes [1, 5], the first and sixth axes [1, 6], and in the plan defined by the first and seventh axes [1, 7], respectively. In Table VI, Annex C, the linear correlation coefficients between the variables and the seven axes are presented.

In these figures, the farthest countries from the center are the countries that most contribute to the formation of the axis and are selected so that the sum of their

contributions to the axis is about 80%. Additionally, all the countries selected for the axis have a contribution greater than the average contribution of a country and are well represented on that axis. The coordinates, absolute and relative contributions of the countries in the first five axes (Annex A) were taken into account for the interpretation of the axes, and for the interpretation of the compromise axes, we determined the linear correlations between the initial variables and the compromise axes, which are in Annex C; that is made next.

Figure 4.2 shows that the countries with the greatest importance on the first axis are Switzerland (che), Canada (can), Turkey (tur), Mexico (mex) and Chile (chl). So, the first axis makes a distinction between Turkey, Mexico and Chile (all with negative coordinates) and the countries Switzerland and Canada (with positive coordinates).

The first axis is positively correlated with the variable Rooms per person (RmPS), Household net adjusted disposable income (HDIn), Employment rate (Empl), Personal earnings (Pear), Quality of support network (QSNw), Water quality (WatQ), Life expectancy (LfEx) and negatively correlated with Dwellings without basic facilities (DwoF), during all period. Therefore, the first axis opposes Switzerland and Canada with high values in variables RmPS, HDIn, Empl, PEar, QSNw, WatQ, LfEx and low value in Dwellings without basic facilities to Turkey, Mexico and Chile with low values in the variables RmPS, HDIn, Empl, PEar, QSNw, WatQ, LfEx and high value in DwoF.

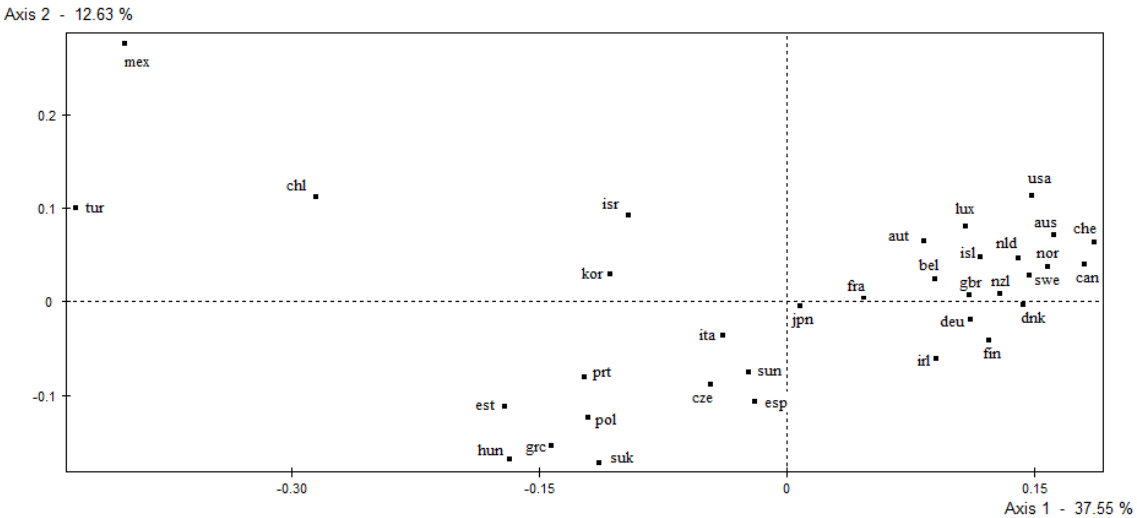


Figure 4.2. Countries' compromise Euclidean image in the plan [1, 2]

The second axis (see Figure 4.2) opposes Slovak Republic (svk), Hungary (hun), and Greece (grc) (negative coordinates) with Mexico (mex) and Chile (chl) (positive

coordinates). The second axis is negatively correlated with the variable Long-term unemployment rate (LUnp), during all period. Therefore, this axis refers to the number of persons who have been unemployed for one year or more, differentiating countries that have less unemployed persons for one year or more – Mexico, Chile - from countries whose have more unemployed persons for one year or more, as Slovak Republic, Hungary and Greece.

The third axis (see Figure 4.3) opposes Spain (esp) with negative coordinate to the countries Korea (kor) and Japan (jpn) with positive coordinates in this axis. The third axis is negatively correlated with the variable Student skills (SdSk), during all period. Thus, the third axis opposes Spain to Korea and Japan because Spain has high value in variable Student skills, while Korea and Japan have low values in variable Student skills.

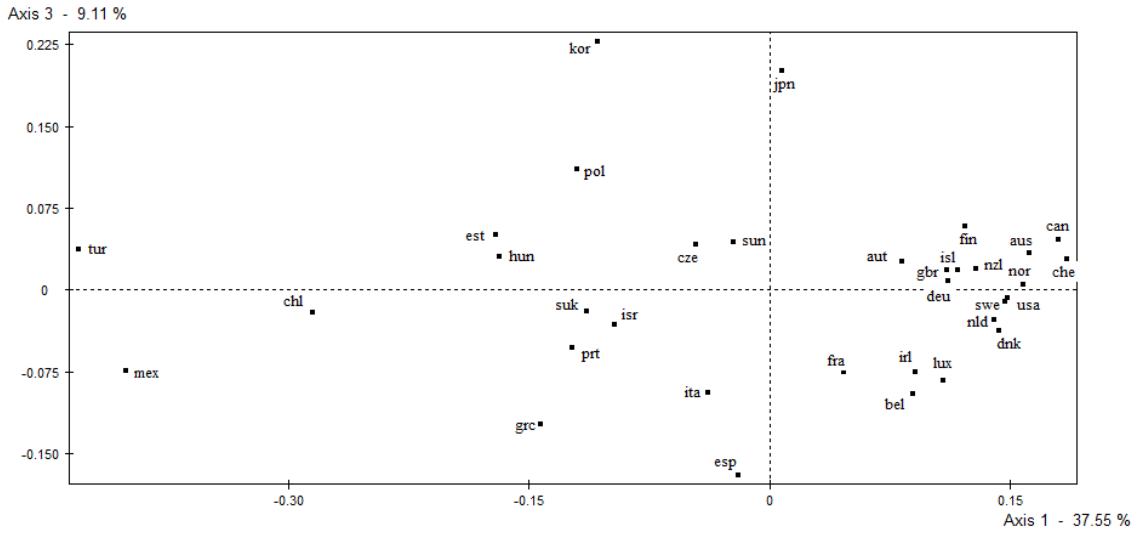


Figure 4.3. Countries' compromise Euclidean image in the plan [1, 3]

The fourth axis opposes Mexico (mex) with negative coordinate to the countries with positive coordinates, like Korea and Japan. The fourth axis is negatively correlated with the variable Homicide rate (Homd), during all period. So, the fourth axis apposes Mexico to Korea and Japan because the Mexico with negative coordinate have high values in Homicide rate (Homd), while the countries Korea and Japan with positive coordinates have low values in Homd.

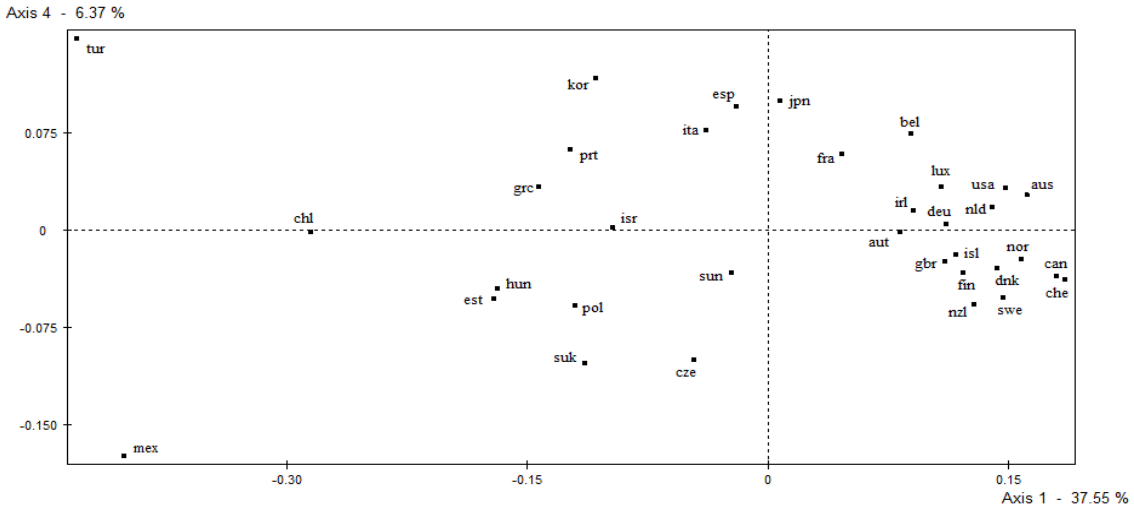


Figure 4.4. Countries' compromise Euclidean image in the plan [1, 4]

The variable that is more correlated with the fifth axis is Consultation on rule-making (CoRl) and it is positively correlated, so from Figure 4.5, this axis opposes the countries Chile (chl), Israel (isr) and Japan (jpn) (positive coordinates) with high values in CoRl to the countries New Zealand (nzl), Australia (aus) (negative coordinates) with low values in the variable CoRl.

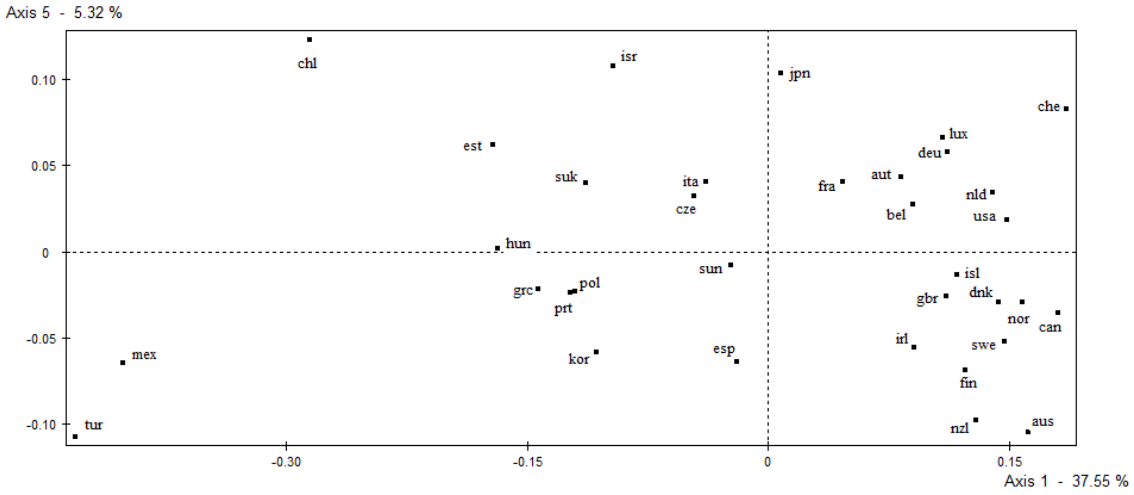


Figure 4.5. Countries' compromise Euclidean image in the plan [1, 5]

The variable that is more correlated with the sixth axis is Housing expenditure (HsEx) and it is negatively correlated, so from Figure 4.6 and also by the absolute contributions, this axis opposes the countries Norway (nor) and Denmark (dnk) (positive

coordinates) with low values in HsEx, to USA (usa) (negative coordinate) with high value in the variable HsEx.

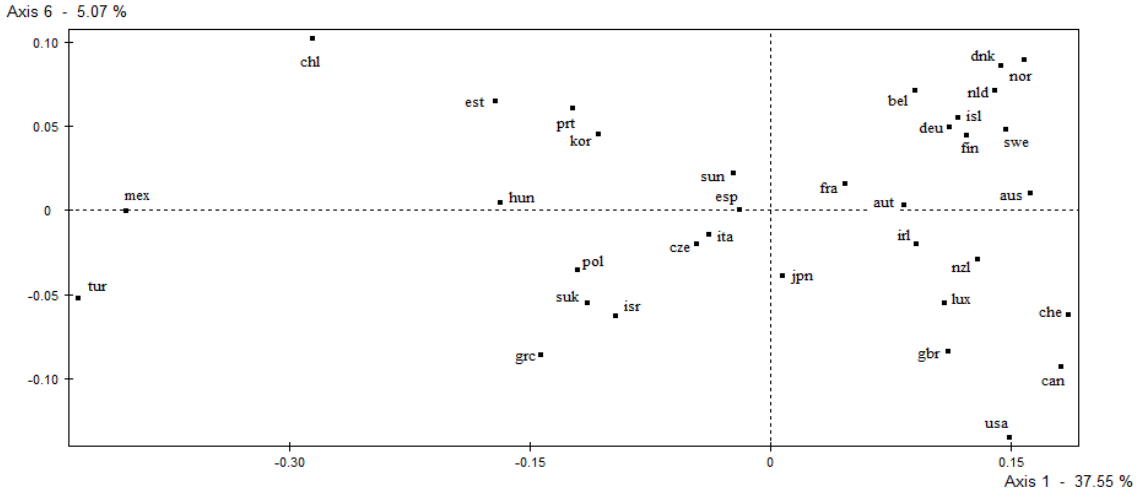


Figure 4.6. Countries' compromise Euclidean image in the plan [1, 6]

Finally, the seventh axis (see Figure 4.7) opposes Greece (grc) and Iceland (isl) with negative coordinates to Estonia (est) with positive coordinate. Seventh axis has a negative correlation with the variable Air pollution (AirP), in all the period. Thus, Greece and Iceland have high values in variable Air pollution, while Estonia has low value in variable Air pollution.

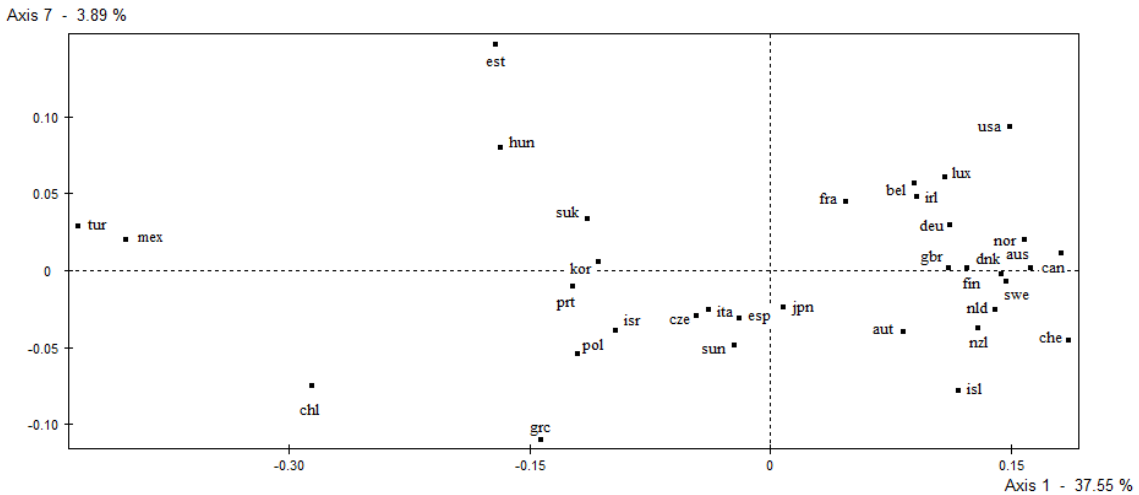


Figure 4.7. Countries' compromise Euclidean image in the plan [1, 7]

4.3. Trajectories

In this step it is important to highlight the countries that are responsible for the differences between the various years. The decomposition of the sum of squared distances (Table 4.6) between normed objects into percentage of countries' contributions allows to identify which countries have contributed more to the differences during all the period 2011 - 2015: Greece (13,32%), Turkey (7,30%), Mexico (6,85%), Spain (6,22%), Estonia (5,62%), Chile (5,13%), Korea (4,98%), Israel (4,07%), and Slovak Republic (3,57%). The countries that less contribute are Finland (1,06%), Ireland (1,10%) and Sweden (1,18%).

The decomposition of the squared distances between pairs of normed objects (Table 4.6) allows to stand out which countries have contributed more for the differences between couple of years. Greece is responsible for these differences for any couple of years here considered, with the highest contribution between 2012 and 2014 (9,13%) and less significant between 2011 and 2012 (3,74%). Another countries that also generally contribute to the structural differences are Turkey and Mexico, in particular, between 2011 and 2013 (8,67% and 8,37% respectively). Figure 4.8 shows the trajectories in the plan [1, 2] that explains 50.18% of the total variance. Although the representation of the trajectories is approximated, their irregularities are visibly presented.

Table 4.6. Decomposition of the sum of squared distances and decomposition of the squared distances

COUNTRY	Sum Squared Distances' Decompo-sition (%)	Decomposition of the Squared Distances (%)									
		11/12	11/13	11/14	11/15	12/13	12/14	12/15	13/14	13/15	14/15
Australia	1,72	2,55	2,57	2,84	2,86	2,21	2,44	2,37	1,83	2,22	2,75
Austria	1,31	1,58	1,93	2,40	1,86	1,76	2,40	2,16	2,52	2,63	2,99
Belgium	1,51	2,62	2,09	2,45	2,30	2,27	2,03	1,70	2,12	2,02	2,67
Canada	2,13	2,46	2,22	2,30	2,21	2,33	1,97	1,98	1,52	1,67	1,58
Chile	**5,13**	3,97	4,18	3,40	2,66	5,51	4,31	3,45	3,51	3,44	5,52
Cze	1,23	2,32	2,23	2,13	2,28	1,55	1,43	1,85	1,33	1,73	2,05
Denmark	1,80	2,62	2,36	2,92	3,25	2,65	2,37	2,49	2,37	2,62	2,74
Estonia	**5,62**	2,64	2,00	3,07	3,41	3,51	4,85	4,90	3,51	3,58	2,15
Finland	1,06	2,38	2,38	2,08	2,21	1,27	1,73	2,00	1,77	2,00	1,94
France	1,71	2,71	2,28	2,13	2,47	2,19	1,32	1,47	0,95	1,65	2,39
Germany	1,51	1,84	1,90	2,63	2,87	1,98	2,51	2,48	2,39	2,27	1,74
Greece	**13,32**	3,74	4,76	8,65	7,47	4,25	**9,13**	7,21	8,23	5,93	5,18
Hungary	2,23	2,14	2,51	2,10	2,21	3,41	2,78	3,01	2,92	2,90	2,43
Iceland	2,84	2,93	2,89	2,99	3,75	2,62	2,69	3,19	2,43	2,68	4,95
Ireland	1,10	2,37	2,38	1,91	1,63	2,16	1,88	1,81	2,17	2,25	1,98
Israel	**4,07**	5,74	5,06	3,66	3,44	3,27	2,76	2,94	2,24	2,61	2,17
Italy	1,23	2,01	2,32	1,44	2,45	2,76	1,32	2,38	2,14	1,71	3,29
Japan	1,87	1,79	2,06	2,54	2,55	2,90	2,57	2,13	3,18	2,82	1,94
Korea	**4,98**	5,14	3,97	2,43	3,44	4,54	4,79	4,97	4,36	4,65	4,21
Luxembourg	2,13	3,05	2,58	2,64	2,42	2,21	3,11	2,89	3,15	2,69	3,79
Mexico	**6,85**	6,81	**8,37**	6,26	6,68	6,48	4,28	3,94	5,44	4,73	4,44
Netherlands	1,54	2,61	1,76	2,06	1,91	3,07	2,87	2,74	2,06	2,00	2,21
Nzl	2,01	3,00	2,20	2,06	1,75	2,46	2,95	3,03	2,77	2,39	3,04
Norway	2,14	2,22	2,59	3,26	2,86	2,57	3,37	2,65	3,09	2,46	2,90
Poland	2,20	3,78	2,77	3,27	2,63	3,18	2,44	2,67	2,42	2,43	2,80
Portugal	1,96	1,70	1,59	2,04	2,05	2,03	2,59	2,57	2,47	2,50	3,00
Svk	**3,57**	2,62	3,04	3,07	3,18	2,83	2,99	3,11	2,50	2,72	2,38
Slovenia	1,32	2,20	2,10	1,88	2,05	2,01	1,44	1,49	1,50	2,18	3,22
Spain	**6,22**	1,44	1,22	4,61	4,97	2,82	6,06	5,93	6,67	6,23	2,70
Sweden	1,18	2,18	2,37	1,91	2,11	2,14	1,75	1,92	1,89	1,97	2,33
Switzerland	2,17	3,17	3,50	3,31	3,39	2,39	2,47	2,83	2,74	2,96	2,90
Turkey	**7,30**	6,22	**8,67**	5,06	4,08	7,85	4,53	4,95	7,47	7,80	4,47
Gbr	1,59	2,90	3,04	2,28	1,88	2,00	1,54	2,24	2,52	3,35	2,67
USA	1,44	2,55	2,10	2,24	2,73	2,81	2,34	2,54	1,82	2,21	2,48

Among the countries with reduced contributions stand out Australia, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Slovenia, Sweden, UK and USA, that are simply more regular, as it can also be seen by their reduced contributions to the sum of squared distances' decomposition (between 1,06% and 1,80%). Consequently, their trajectories are closer to the compromise object.

The first axis is positively correlated with the variable Rooms per person, Household net adjusted disposable income, Employment rate, Personal earnings, Quality of support network, Water quality and Life expectancy and negatively correlated with Dwellings without basic facilities. Thus, as the trajectory evolution of Estonia, Germany and Iceland is from the left to the right side, it can indicate progress in the following OECD well-being conceptual dimensions: Quality of life and Material conditions (Figure 2.5), in contrast to Greece, Israel and Mexico, whose trajectory evolution is from the right to left side. Hungary and Korea have a more elongated down to up trajectory in relation to the second axis, which can indicate a reduction of unemployed for one year or more, as the second axis is negatively correlated with the variable Long-term unemployment rate, differentiating countries like, Greece and Spain.

The remaing countries have some years with uncertainty, as it can be concluded by the analysis of the squared distances decomposition. Canada, Luxembourg and Poland have an irregular period between 2011 and 2012, Switzerland between 2011 and 2013, Norway between 2011 and 2014, Slovak Republic between 2011 and 2015, Hungary between 2012 and 2013, Japan and Spain between 2013 and 2014, Iceland, New Zealand and Portugal between 2014 and 2015 (see Table 4.6).

We made also the countries' trajectories in the plan 1-3, which are presented in the Annex D. From these trajectories, we observe that Greece and Spain have a more elongated down to up trajectory in the third axis, this axis is negatively correlated with the variable Student skills, which can indicate that Greece and Spain have a reduction in the value of this variable.

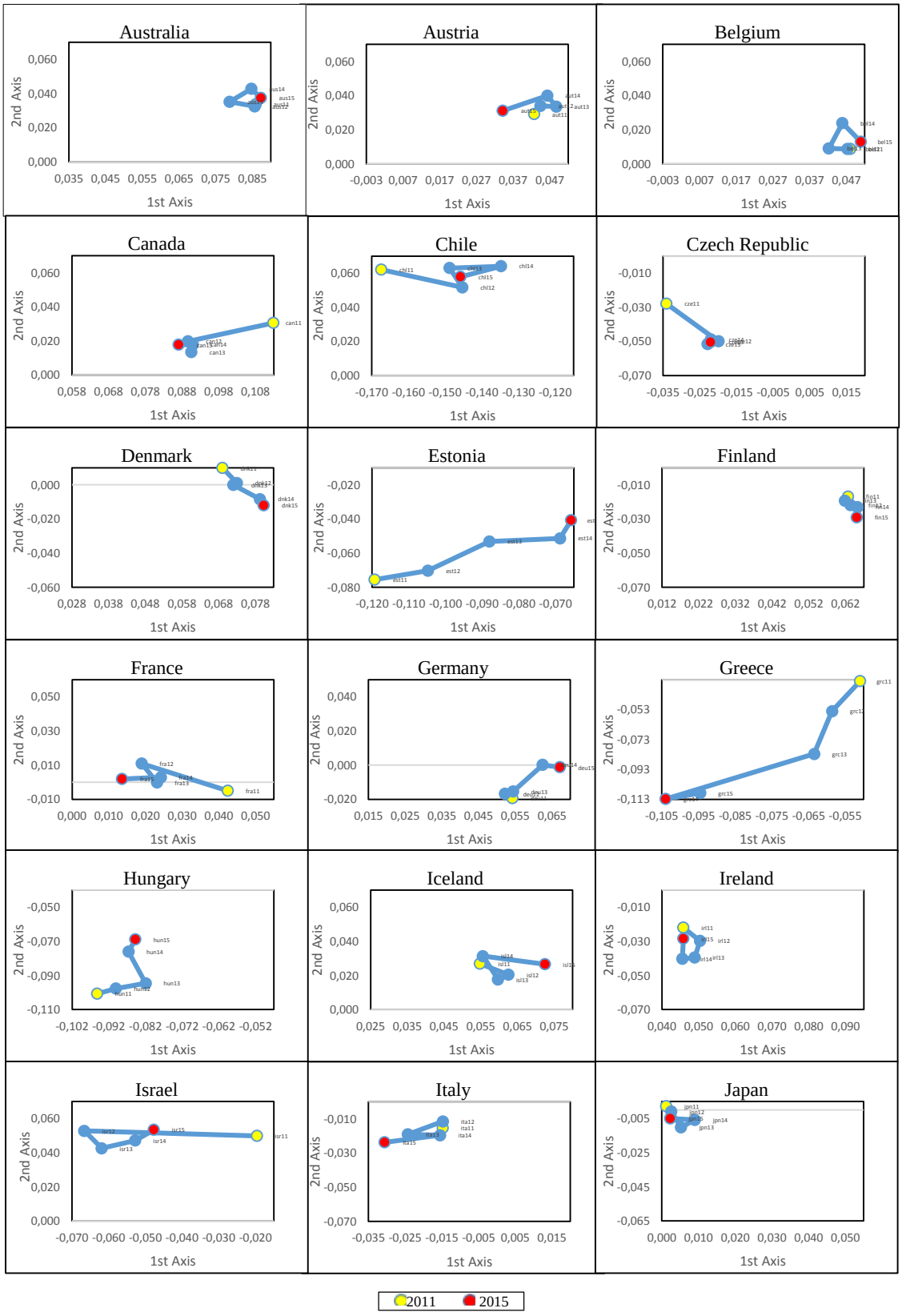


Figure 4.8. Countries' trajectories in the plan [1, 2]

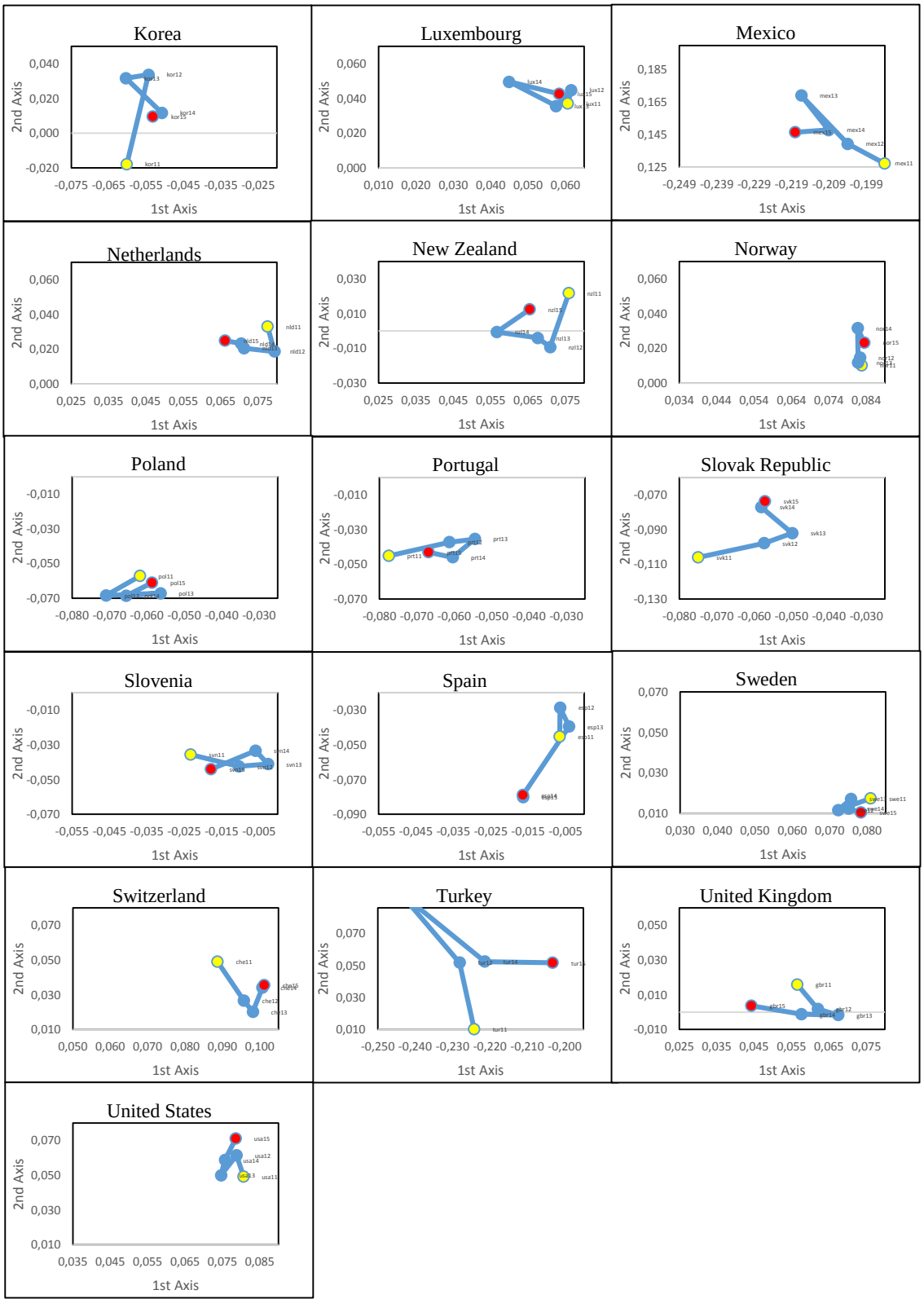


Figure 4.9. Countries' trajectories in the plan [1, 2] (cont.)

CHAPTER 5
Conclusions

In this chapter we present the main conclusions obtained during this study, the main limitations, and also perspectives for future development that allow a better characterization of the evolution of OECD countries well-being.

5.1 Concluding Remarks

This study has consisted in analyzing, between 2011 and 2015, the similarities and differences between the thirty-four members of the Organisation for Economic Cooperation and Development, OECD, identifying a common structure, and allowing analyzing through Statis Methodology the well-being and social progress described by seventeen to twenty-four quantitative variables or indicators.

So, indicators that feature the quality of life and material conditions of these countries were averaged with equal weights and collected in five Better Life Index data tables that deals with data pertinent to measure well-being of societies, from the statistical databases online platform of the OECD.

Using Escoufier's RV coefficient and the matrix of the RV coefficients we concluded that the years 2012 and 2013, 2014 and 2015 are the closest or similar between them; while the pairs of years 2011 and 2014, 2011 and 2015 are the most different or more distant between them.

In general, the Statis Methodology opposed Switzerland and Canada with Turkey, Mexico and Chile, because Switzerland and Canada present high values in variables Rooms per person, Household net adjusted disposable income, Employment rate, Personal earnings, Quality of support network, Water quality, Life expectancy, and low values in the variable Dwellings without basic facilities; while Turkey, Mexico and Chile present high values in the variable Dwellings without basic facilities, during all period.

Slovak Republic (svk), Hungary (hun), and Greece (grc) present low values in the number of persons who have been unemployed for one year or more, are opposed to Mexico, that has more unemployed persons for one year or more.

Spain opposes to the countries Korea and Japan in the variable Student skills, Spain has high value in variable Student skills and opposes to the countries Korea and Japan that have low values, during all period.

Mexico with high values in Homicide rate opposes with countries like, Korea and Japan with low values in Homicide rate.

Chile, Israel and Japan have high values in the variable Consultation on rule-making, while the countries New Zealand, Australia have low values in this variable.

Norway and Denmark oppose to USA because Norway and Denmark have low values in the variable Housing expenditure while USA has high value in this variable.

Through the decomposition of the sum of squared distances between normed objects we identified countries that have contributed more to the differences during all period 2011 - 2015: Greece, Turkey, Mexico, Spain, Estonia, Chile, Korea, Israel and Slovak Republic. The countries that less contributed were Finland, Ireland and Sweden.

Finally, the trajectory evolution of Estonia, Germany and Iceland indicated progress in the conceptual dimensions of OECD well-being (Quality of life and Material conditions), in contrast to Greece and Mexico.

As a final point, it highlights the important contribution of the Statis methodology for the joint analysis of multiple data tables in the sense that allows to analyze jointly information collected at different time instants. It also has the major advantage of reducing the size of the initial set of data and provides a set of graphical representations, indicative of the relationships of the variables and similarities or oppositions between individuals, as well as their evolution.

5.2 Limitations and Future Developments

This work was developed using the software of data analysis SPAD version 8.0, but this software does not allow to plot some graphics, like the trajectories, and some computations, like the correlation coefficients between variables and each compromise axis. So we proceeded to perform computations in R language, as well as Excel as an additional software support for the implementation of the Statis methodology, covering the steps presented with the theoretical exposition of the method. It would be important

to develop some package that systematizes all the necessary computation for the analysis with the Statis methodology.

Another aspect of interest would be trying to discard some variables to have data tables with the same number of variables and apply other methodologies for Data Analysis of a set of numeric data tables as Dual Statis methodology.

References

[1] Abdi, H., R. French, J. B. Orange, and L. J. Williams (2010), "A tutorial on Multi-Block Discriminant Correspondence Analysis (MUDICA): A new method for analyzing discourse data from clinical populations", *Journal of Speech, Language, and Hearing Research* 53(5), pp. 1372-1393.

[2] Abdi, H., L. J. Williams, D. Valentin, and M. Bennani-Dosse (2012), "STATIS and DISTATIS: optimum multitable principal component analysis and three way metric multidimensional scaling", *WIRES Computational Statistics* 4(2), pp. 124–167.

[3] Acar, E. and B. Yener (2009), "Unsupervised Multiway Data Analysis: A Literature Survey", *Knowledge and Data Engineering, IEEE Transactions on* 21(1), pp. 6-20.

[4] Almeida, A. M. (2012), "Metodologia STATIS Dual. Aplicação a dados sobre Infertilidade", Master thesis, Universidade do Porto, Porto.

[5] Amendola, A., F. E. Caroleo, and G. Coppola (2006), "Regional Disparities in Europe", *The European Labour Market*, pp. 9–31.

[6] Bouroche, J. (1975), "Analyse des données ternaires: la double analyse en composantes principales", Doctoral dissertation, Université de Paris, Paris.

[7] Brás, P. C. (2012), "Estudo da Evolução do Setor da Construção em Portugal recorrendo à Metodologia Statis", Master thesis, Universidade do Porto, Portugal.

[8] Bro, R. (1998), *Multi-way analysis in the food industry: models, algorithms, and applications*. Amsterdam: Universiteit van Amsterdam.

[9] Camiz, S. (2001), "Exploratory 2-and 3-way data analysis and applications", *Lecture Notes of Tbilisi International Centre of Mathematics and Informatics* (2).

[10] Chaya, C., C. Perez-Hugalde, L. Judez, C.S. Wee, and J.X. Guinard (2004), "Use of the STATIS method to analyze time-intensity profiling data", *Food quality and preference* 15(1), pp. 3-12.

[11] Coquet, R., L. Troxler, and G. Wipff (1996), "The STATIS method: Characterization of Conformational States of Flexible Molecules from Molecular Dynamics Simulations in Solution", *Journal of Molecular Graphics* 14, pp. 206-212.

[12] Derks, E. P. P. A., J. A. Westerhuis, A. K. Smilde, and B. M. King (2003), "An introduction to multi-block component analysis by means of a flavor language case study", *Food Quality and Preference* 14, pp. 497–506.

[13] Diggle, P., P. Heagerty, K. Liang, and S. Zeger (2013), *Analysis of Longitudinal Data*. 2nd ed. United Kingdom: Oxford University Press.

[14] Escofier, B. and J. Pagés (1994), "Multiple factor analysis (AFMULT package)", *Computational Statistics & Data Analysis* 18(1), pp. 121-140.

[15] Escoufier, Y. (1973), "Le Traitement des Variables Vetorielles", *Biometrics* 29, pp. 751 – 760.

[16] Eslami, A., E. M. Qannari, A. Kohler, and S. Bougeard (2013), "Analyses factorielles de données structurées en groupes d'individus", *Journal de la Société Française de Statistique* 154(3), pp. 44-57.

[17] Figueiredo, A., F. Figueiredo, N. Monteiro, and O. Straume (2012), "Restructuring in privatised firms: A Statis approach", *Structural Change and Economic Dynamics* 23, pp. 108–116.

[18] Gonçalves, G. S. (2010), "Análise da Evolução das Actividades Económicas em Portugal através da Metodologia Statis", Master Thesis, Universidade do Porto, Porto.

[19] González, P., L. Lera, and M. Montero (2005), "Caracterización del Consumo de Energía Eléctrica en Función del Tiempo: Un Enfoque Multivariado", *Revista Investigación Operacional* 26(1).

[20] Gower, J. C. (1975), "Generalized procrustes analysis", *Psychometrika* 40(1), pp. 33–51.

[21] Kolda, T. G. and B. W. Bader (2009), "Tensor decompositions and applications", *SIAM Review* 51(3), pp. 455-500.

[22] Kroonenberg, P. (2008), *Applied Multiway Data Analysis*. Hoboken, NJ: John Wiley & Sons, Inc.

[23] L'Hermier des Plantes, H. (1976), "Structuration des tableaux à trois indices de la statistique", Thèse de 3 ème cycle, Université de Montpellier.

[24] Lavit, C. (1988), *Analyse conjointe de tableaux quantitatifs*. Editions Masson.

[25] Lavit, C., Y. Escoufier, R. Sabatier, and P. Traissac (1994), "The ACT (STATIS method)", *Computational Statistics & Data Analysis* 18, pp. 97-119.

[26] Le Dien, S. and J. Pagés (2003), "Hierarchical multiple factor analysis: Application to the comparison of sensory profiles", *Food Quality and Preferences* 14, pp. 397–403.

[27] Lebart, L., A. Morineau, and M. Piron (1995), *Statistique Exploratoire Multidimensionnelle*. Paris: Dunod.

[28] Lourenço, C. (2013), "Analysis of European Countries' Vulnerabilities through Statis Methodology", Master thesis, Universidade do Porto, Porto.

[29] OECD (2013), "How's Life? 2013: Measuring Well-being", OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264201392-en

[30] OECD (2015), "OECD.Stat", http://stats.oecd.org

[31] OECD (2015), "Your Better Life Index", http://www.betterlifeindex.org

[32] Qannari, E. M., P. Courcoux, and E. Vigneau (2001), "Common components and specific weights analysis performed on preference data", *Food Quality and Preference* 12(5), pp. 365-368.

[33] Sabatier, R. and M. Vivien (2008), "A new linear method for analyzing four-way multiblocks tables: STATIS-4", *Journal of Chemometrics* 22, pp. 399–407.

[34] Sharma, S. (1996), *Applied Multivariate Techniques*. USA: John Wiley & Sons.

[35] Smilde, A., J. Westerhuis, and R. Boqué (2000), "Multiway multiblock component and covariates regression models", *Journal of Chemometrics* 14, pp. 301–331.

[36] Smilde, A., R. Bro, and P. Geladi (2004), *Multi-way Analysis with Applications in the Chemical Sciences*. 1st ed. England: John Wiley & Sons.

[37] Stanimirova, I., B. Walczak, D. L. Massart, V. Simeonov, C. A. Saby, and E. Di Crescenzo (2004), "STATIS, a three-way method for data analysis. Application to environmental data", *Chemometrics and Intelligent Laboratory Systems* 73(2), pp. 219-233.

[38] Tormod, N., P. Brockhoff, and O. Tomic (2010), *Statistics for Sensory and Consumer Science*. 1st ed. United Kingdom: John Wiley & Sons Ltd.

[39] Vivien, M. and F. Sune (2009), "Two four-way multiblock methods used for comparing two consumer panels of children", *Food quality and preference* 20(7), pp. 472-481.

ANNEX A – Coordinates, absolute and relative contributions of the countries in the compromise axes

COUNTRY	Coordinates					Absolute contributions					Relative contributions				
	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5
Australia	0,16	0,07	0,03	0,03	-0,10	0,03	0,02	0,01	0,00	0,09	0,50	0,10	0,02	0,01	0,21
Austria	0,08	0,07	0,03	0,00	0,04	0,01	0,01	0,00	0,00	0,01	0,30	0,19	0,03	0,00	0,08
Belgium	0,09	0,02	-0,10	0,07	0,03	0,01	0,00	0,04	0,04	0,01	0,18	0,01	0,21	0,12	0,02
Canada	0,18	0,04	0,05	-0,04	-0,04	0,04	0,01	0,01	0,01	0,01	0,57	0,03	0,04	0,02	0,02
Chile	-0,29	0,11	-0,02	0,00	0,12	0,09	0,04	0,00	0,00	0,12	0,56	0,09	0,00	0,00	0,10
Cze	-0,05	-0,09	0,04	-0,10	0,03	0,00	0,03	0,01	0,07	0,01	0,07	0,25	0,05	0,32	0,03
Denmark	0,14	0,00	-0,04	-0,03	-0,03	0,02	0,00	0,01	0,01	0,01	0,45	0,00	0,03	0,02	0,02
Estonia	-0,17	-0,11	0,05	-0,05	0,06	0,03	0,04	0,01	0,02	0,03	0,33	0,14	0,03	0,03	0,04
Finland	0,12	-0,04	0,06	-0,03	-0,07	0,02	0,01	0,02	0,01	0,04	0,43	0,05	0,10	0,03	0,13
France	0,05	0,00	-0,07	0,06	0,04	0,00	0,00	0,03	0,02	0,01	0,10	0,00	0,26	0,16	0,08
Germany	0,11	-0,02	0,01	0,00	0,06	0,01	0,00	0,00	0,00	0,03	0,54	0,02	0,00	0,00	0,14
Greece	-0,14	-0,15	-0,12	0,03	-0,02	0,02	0,08	0,07	0,01	0,00	0,22	0,25	0,16	0,01	0,00
Hungary	-0,17	-0,17	0,03	-0,05	0,00	0,03	0,10	0,00	0,01	0,00	0,39	0,39	0,01	0,03	0,00
Iceland	0,12	0,05	0,02	-0,02	-0,01	0,02	0,01	0,00	0,00	0,00	0,28	0,05	0,01	0,01	0,00
Ireland	0,09	-0,06	-0,08	0,01	-0,06	0,01	0,01	0,03	0,00	0,02	0,21	0,10	0,14	0,01	0,08
Israel	-0,10	0,09	-0,03	0,00	0,11	0,01	0,03	0,00	0,00	0,09	0,16	0,15	0,02	0,00	0,20
Italy	-0,04	-0,04	-0,09	0,08	0,04	0,00	0,00	0,04	0,04	0,01	0,05	0,04	0,30	0,20	0,06
Japan	0,01	-0,01	0,20	0,10	0,10	0,00	0,00	0,19	0,07	0,09	0,00	0,00	0,50	0,12	0,13
Korea	-0,11	0,03	0,23	0,12	-0,06	0,01	0,00	0,24	0,09	0,03	0,11	0,01	0,51	0,13	0,03
Luxembourg	0,11	0,08	-0,08	0,03	0,07	0,01	0,02	0,03	0,01	0,04	0,21	0,12	0,13	0,02	0,08
Mexico	-0,40	0,28	-0,07	-0,18	-0,06	0,18	0,26	0,03	0,20	0,03	0,55	0,26	0,02	0,10	0,01
Netherlands	0,14	0,05	-0,03	0,02	0,03	0,02	0,01	0,00	0,00	0,01	0,48	0,05	0,02	0,01	0,03

Coordinates, absolute and relative contributions of the countries in the compromise axes (cont.)

COUNTRY	Coordinates					Absolute contributions					Relative contributions				
	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5
Nzl	0,13	0,01	0,02	-0,06	-0,10	0,02	0,00	0,00	0,02	0,08	0,34	0,00	0,01	0,07	0,20
Norway	0,16	0,04	0,00	-0,02	-0,03	0,03	0,00	0,00	0,00	0,01	0,51	0,03	0,00	0,01	0,02
Poland	-0,12	-0,12	0,11	-0,06	-0,02	0,02	0,05	0,06	0,02	0,00	0,23	0,25	0,20	0,05	0,01
Portugal	-0,12	-0,08	-0,05	0,06	-0,02	0,02	0,02	0,01	0,03	0,00	0,23	0,10	0,04	0,06	0,01
Svk	-0,11	-0,17	-0,02	-0,10	0,04	0,01	0,10	0,00	0,07	0,01	0,18	0,42	0,01	0,15	0,02
Slovenia	-0,02	-0,08	0,04	-0,03	-0,01	0,00	0,02	0,01	0,01	0,00	0,02	0,25	0,09	0,05	0,00
Spain	-0,02	-0,11	-0,17	0,09	-0,06	0,00	0,04	0,14	0,06	0,03	0,01	0,16	0,40	0,12	0,06
Sweden	0,15	0,03	-0,01	-0,05	-0,05	0,02	0,00	0,00	0,02	0,02	0,51	0,02	0,00	0,06	0,06
Switzerland	0,19	0,06	0,03	-0,04	0,08	0,04	0,01	0,00	0,01	0,05	0,51	0,06	0,01	0,02	0,10
Turkey	-0,43	0,10	0,04	0,15	-0,11	0,21	0,03	0,01	0,14	0,09	0,72	0,04	0,01	0,08	0,04
Gbr	0,11	0,01	0,02	-0,02	-0,03	0,01	0,00	0,00	0,00	0,01	0,42	0,00	0,01	0,02	0,02
USA	0,15	0,11	-0,01	0,03	0,02	0,03	0,04	0,00	0,01	0,00	0,27	0,15	0,00	0,01	0,00

ANNEX B – Data Tables

Table I. Data for the year 2011

COUNTRY	DwoF11	RmPS11	HDIn11	HFWl11	Empl11	Lunp11	QSNw11	EdAt11	SdSk11	AirP11	LfEx11	SHth11	LfSa11	Aslt11	Homd11	EWkL11	ToLe11
Australia	1,20	2,40	27039,48	28745,19	72,30	1,00	95,40	69,72	514,90	14,28	81,50	84,90	7,50	2,10	1,20	14,20	15,12
Austria	1,30	1,70	27669,86	43733,69	71,73	1,13	94,60	81,04	470,28	29,03	80,50	69,60	7,30	3,00	0,50	9,52	15,23
Belgium	0,60	2,30	26008,38	69486,64	62,01	4,07	92,60	69,58	505,95	21,27	79,80	76,70	6,90	7,30	1,80	4,24	16,61
Canada	0,19	2,50	27014,80	59478,62	71,68	0,97	95,30	87,07	524,24	15,00	80,70	88,10	7,70	1,40	1,70	3,84	14,97
Chile	9,36	1,30	8712,33	15355,00	59,32	2,18	85,20	67,97	449,37	61,55	77,80	56,20	6,60	9,50	8,10	7,95	13,66
Cze	0,70	1,30	16689,56	12685,01	65,00	3,19	88,90	90,90	478,19	18,50	77,30	68,20	6,20	3,50	2,00	9,21	14,34
Denmark	0,00	1,90	22928,92	27180,46	73,44	1,44	96,80	74,56	494,92	16,26	78,80	74,30	7,80	3,90	1,40	1,85	16,31
Estonia	12,20	1,20	13486,41	11201,52	61,02	7,84	84,60	88,48	500,96	12,62	73,90	56,30	5,10	6,20	6,30	2,86	14,94
Finland	0,80	1,90	24245,75	18616,40	68,15	2,01	93,40	81,07	535,88	14,87	79,90	67,70	7,40	2,40	2,50	3,66	15,95
France	0,80	1,80	27507,86	42252,70	63,99	3,75	93,90	69,96	495,62	12,94	81,00	72,40	6,80	4,90	1,40	8,55	16,06
Germany	1,20	1,70	27664,72	45113,30	71,10	3,40	93,50	85,33	497,31	16,21	80,20	64,70	6,70	3,60	0,80	5,22	16,14
Greece	1,80	1,20	21499,33	15856,33	59,55	5,73	86,10	61,07	482,78	32,00	80,00	76,40	5,80	3,80	1,10	5,61	14,65
Hungary	7,10	1,00	13857,64	11425,92	55,40	5,68	88,60	79,70	494,18	15,60	73,80	55,20	4,70	3,80	1,50	3,38	15,39
Iceland	0,30	1,60	21201,00	39091,00	78,17	1,35	97,60	64,13	500,28	14,47	81,30	80,60	6,90	2,70	0,00	13,45	14,06
Ireland	0,30	2,10	24313,31	23071,69	59,96	6,74	97,30	69,45	495,64	12,54	79,90	84,40	7,30	2,70	2,00	3,42	15,24
Israel	3,80	1,14	19120,00	62683,70	59,21	1,85	93,00	81,23	473,99	27,57	81,10	79,70	7,40	3,10	2,40	22,76	13,81
Italy	0,20	1,40	24383,50	53452,43	56,89	4,13	86,00	53,31	486,05	23,33	81,50	63,40	6,40	4,70	1,20	4,65	15,66
Japan	6,40	1,80	23210,18	70033,47	70,11	1,99	89,70	87,00	519,86	27,14	82,70	32,70	6,10	1,60	0,50	31,70	14,33
Korea	7,46	1,30	16253,89	23670,83	63,31	0,01	79,80	79,14	539,27	30,76	79,90	43,70	6,10	2,10	2,30	27,66	15,46
Luxembourg	0,80	1,90	35419,00	64621,00	65,21	1,29	95,00	67,94	472,17	12,63	80,60	74,00	7,10	4,30	1,50	3,55	15,05
Mexico	6,60	1,00	12182,00	11589,91	60,39	0,13	87,10	33,55	425,27	32,69	75,10	65,50	6,80	14,80	11,60	23,70	13,56
Netherlands	0,00	2,00	25976,83	60280,01	74,67	1,24	94,80	73,29	508,40	30,76	80,20	80,60	7,50	5,00	1,00	0,62	16,06
Nzl	0,20	2,30	18818,88	23064,00	72,34	0,60	97,10	72,05	520,88	11,93	80,40	89,70	7,20	2,30	1,30	13,28	15,13
Norway	0,10	1,90	29365,87	5720,67	75,31	0,34	93,10	80,70	503,23	15,85	80,60	80,00	7,60	3,30	0,60	2,99	16,05
Poland	4,80	1,00	13810,64	7478,84	59,26	2,49	92,20	87,15	500,48	35,07	75,60	57,70	5,80	2,20	1,20	7,59	15,35
Portugal	2,40	1,50	18540,18	27819,84	65,55	5,97	83,30	28,25	489,33	21,00	79,30	48,60	4,90	6,20	1,20	5,19	14,71
Svk	1,10	1,10	15489,93	2366,06	58,76	8,56	89,60	89,93	477,44	13,14	74,80	31,10	6,10	3,50	1,70	5,82	14,78
Slovenia	0,60	1,10	19889,81	20187,91	66,20	3,21	90,70	82,04	483,08	29,03	78,80	58,80	6,10	3,90	0,50	6,79	15,29
Spain	0,00	1,90	22971,69	22172,70	58,55	9,10	94,10	51,23	481,04	27,56	81,20	69,80	6,20	4,20	0,90	6,91	15,71
Sweden	0,00	1,80	26543,18	38887,83	72,73	1,42	96,20	85,04	497,45	10,52	81,20	79,10	7,50	5,20	0,90	1,24	15,48
Switzerland	0,10	1,70	27542,06	93415,03	78,59	1,49	93,20	86,81	500,50	22,36	82,20	80,95	7,50	4,20	0,70	5,87	14,78
Turkey	17,10	0,70	13044,00	5697,00	46,29	3,11	78,80	30,31	464,19	37,06	73,60	66,80	5,50	6,00	2,90	45,33	15,32
Gbr	0,50	1,80	27208,01	60382,26	69,51	2,59	94,90	69,63	494,18	12,67	79,70	76,00	7,00	1,90	2,60	11,92	15,60
USA	0,00	2,30	37684,82	98440,24	66,71	2,85	92,30	88,70	499,83	19,40	77,90	88,00	7,20	1,60	5,20	10,66	15,13

Table II. Data for the year 2012

COUNTRY	DwoF 12	HsEx 12	RmPs 12	HDIn 12	HFWl 12	Empl 12	JobS 12	LUnp 12	PEar 12	QSNw 12	EdAt 12	SdSk 12	YsEd 12	AirP 12	WatQ 12	CoRl 12	VoTr 12	LfEx 12	SHth 12	LfSa 12	Aslt 12	Homd 12	EWkL 12	ToLe 12
Australia	1,20	21	2,30	26927	29630	72	11,70	0,97	42550	97	71	519	18,40	14	92	10,50	95	81,80	85	7,40	2,10	1,20	13,99	14,41
Austria	1,20	22	1,70	27541	45468	72	8,80	1,11	41904	94	82	487	16,60	29	94	7,10	82	80,70	69	7,50	2,98	0,50	9,02	14,46
Belgium	0,30	20	2,10	26734	69466	62	6,46	4,04	42811	94	71	509	18,70	21	84	4,50	91	80,30	77	7,00	6,67	1,70	4,45	15,71
Canada	0,19	23	2,60	27138	60344	72	11,26	0,96	41961	92	88	527	17,00	15	90	10,50	60	80,80	88	7,40	1,31	1,80	3,91	14,25
Chile	9,36	21	1,30	8618	15355	59	5,75	2,18	11299	86	69	439	15,60	62	85	2,00	88	79,00	59	6,60	9,33	3,70	7,15	13,66
Cze	0,70	26	1,40	16614	13681	65	6,36	3,16	20424	91	91	490	17,60	18	87	6,80	64	77,70	68	6,30	2,96	0,90	8,75	14,34
Denmark	0,00	26	1,90	23213	31025	73	12,36	1,42	42904	96	76	499	18,40	16	96	7,00	87	79,30	71	7,80	3,93	0,90	1,92	16,06
Estonia	11,10	21	1,20	13149	11231	61	9,63	7,63	17145	91	89	514	17,50	13	70	3,30	62	75,60	55	5,50	5,52	5,20	3,55	14,20
Finland	0,70	23	1,90	24958	19751	68	13,42	1,98	35319	94	82	543	19,50	15	94	9,00	74	80,20	68	7,40	2,36	2,30	3,66	14,89
France	0,70	21	1,80	27789	44353	64	9,02	3,74	37229	92	70	497	16,50	13	80	3,50	84	81,40	68	7,00	4,95	1,30	8,63	15,33
Germany	1,60	22	1,80	27692	41695	71	7,79	3,34	38251	95	85	510	17,70	16	96	4,50	78	80,50	65	6,70	3,60	0,80	5,14	15,31
Greece	1,40	28	1,20	22134	17638	60	5,74	5,64	28200	85	61	473	18,10	32	61	6,50	71	80,60	76	5,40	3,70	1,10	5,20	14,65
Hungary	6,60	23	1,00	13696	11812	55	7,72	5,64	18667	89	81	496	17,50	16	78	7,90	64	74,30	54	4,90	3,59	1,40	3,33	15,39
Iceland	0,40	21	1,60	21201	39091	79	12,73	1,61	47257	98	66	501	18,90	14	97	5,10	84	81,50	78	6,90	2,69	0,30	13,45	14,06
Ireland	0,20	18	2,10	24156	21485	60	7,13	6,69	48217	98	72	497	17,60	13	89	9,00	67	81,00	83	6,90	2,63	1,20	3,72	15,24
Israel	3,80	21	1,20	19120	47750	60	7,30	1,48	31155	88	82	459	15,50	28	59	2,50	64	81,70	81	7,40	6,54	2,10	18,92	13,81
Italy	0,20	23	1,40	23917	54706	57	6,55	4,08	32404	91	54	486	17,00	23	80	5,00	81	82,00	67	6,10	4,70	1,00	4,62	14,89
Japan	6,40	23	1,80	23458	71717	70	10,23	1,88	33900	92	91	529	17,07	27	88	7,30	67	83,00	30	6,10	1,37	0,50	31,70	13,96
Korea	4,16	16	1,40	16570	23715	63	25,80	0,01	31733	81	80	541	17,20	31	82	10,40	63	80,70	38	6,90	2,09	2,80	27,66	14,63
Lux	0,50	25	1,90	35321	72644	65	5,56	1,28	52110	93	77	482	14,70	13	92	6,00	91	80,70	75	7,00	4,29	2,50	3,71	15,05
Mexico	4,19	19	1,00	11106	11728	60	18,02	0,13	11020	82	35	420	14,60	33	71	9,00	59	75,50	66	6,90	10,98	19,00	28,90	13,56
Nld	0,00	22	2,00	25740	61157	75	5,18	1,23	45671	94	73	519	17,70	31	95	6,10	80	80,80	77	7,50	4,88	1,10	0,68	16,06
Nzl	0,20	29	2,30	18601	23064	72	7,13	0,59	31878	95	72	524	18,60	12	88	10,30	79	81,00	90	7,20	2,23	1,50	13,28	14,87
Norway	0,10	19	2,00	30465	6197	75	7,72	0,34	44164	94	81	500	17,80	16	95	8,10	77	81,20	80	7,60	3,25	0,60	2,66	15,56
Poland	4,10	24	1,00	14508	8101	59	9,07	2,46	18172	90	88	501	18,10	35	77	10,80	54	76,30	58	5,60	1,81	1,30	7,35	14,20
Portugal	1,60	18	1,40	18689	27299	66	7,35	5,64	21722	86	30	490	18,10	21	88	6,50	64	79,80	49	5,20	5,81	1,20	5,36	14,71
Svk	1,20	26	1,10	15840	2189	59	6,14	8,52	18719	92	91	488	16,40	13	85	6,60	55	75,20	63	5,90	2,97	1,60	5,82	14,78
Slovenia	0,40	20	1,10	19334	19852	66	6,85	3,13	32308	93	83	499	18,30	29	88	10,30	63	79,50	59	6,00	3,91	0,60	6,08	14,62
Spain	0,00	20	1,90	23541	22684	59	10,77	9,04	32454	94	52	484	16,90	28	81	7,30	75	82,20	74	6,50	4,18	0,90	6,66	15,85
Sweden	0,00	22	1,80	26633	38616	73	13,17	1,39	36766	92	86	496	18,90	11	97	10,90	82	81,50	79	7,30	5,13	1,00	1,28	15,11
Che	0,10	24	1,80	27756	95407	79	8,30	1,46	49810	94	87	517	17,00	22	97	8,40	48	82,60	87	7,50	4,20	0,70	5,87	14,78
Turkey	12,67	21	0,90	13044	5697	46	22,67	3,40	22397	69	33	455	14,20	37	65	5,50	83	74,30	66	5,30	5,09	3,30	43,00	15,32
Gbr	0,50	23	1,80	26552	59923	70	6,89	2,53	44008	96	74	500	16,30	13	97	11,50	61	80,40	76	6,90	1,93	1,20	11,71	14,83
USA	0,00	20	2,30	37708	102075	67	11,38	2,79	52607	92	89	496	16,90	19	86	8,30	90	78,70	90	7,10	1,50	5,00	10,86	14,27

Table III. Data for the year 2013

COUNTRY	DwoF 13	HsEx 13	RmPs 13	HDIn 13	HFWl 13	Empl 13	JobS 13	LUnp 13	PEar 13	QSNw 13	EdAt 13	SdSk 13	YsEd 13	AirP 13	WatQ 13	CoRl 13	VoTr 13	LfEx 13	SHth 13	LfSa 13	Aslt 13	Homd 13	EWkL 13	ToLe 13
Australia	1,20	19	2,30	28884	32178	73	12,40	0,96	43908	94	73	519	18,50	14	91	10,50	93	82,00	85	7,20	2,10	1,00	14,13	14,41
Austria	1,20	21	1,70	28852	47458	72	9,50	1,07	43688	94	82	487	16,90	27	96	7,10	82	81,10	69	7,40	3,00	0,60	8,76	14,46
Belgium	1,40	20	2,20	26874	74007	62	7,40	3,45	44321	92	70	509	18,70	21	80	4,50	89	80,50	73	6,90	6,70	1,70	4,43	15,71
Canada	0,20	22	2,60	28194	63852	72	11,30	1,00	42253	94	88	527	17,00	16	89	10,50	61	81,00	88	7,40	1,30	1,60	3,91	14,25
Chile	9,40	18	1,30	11039	16972	61	10,50	2,94	15820	82	71	439	16,20	53	77	2,00	88	78,30	59	6,50	8,30	3,70	16,32	13,66
Cze	0,70	25	1,40	16957	14749	66	6,70	2,80	19312	89	92	490	17,80	17	84	6,80	63	78,00	59	6,30	3,00	1,70	7,58	14,34
Denmark	0,60	24	1,90	24682	36184	73	12,90	1,85	45802	94	76	499	18,80	16	94	7,00	88	79,90	70	7,50	3,90	0,90	1,97	16,06
Estonia	9,60	19	1,60	12800	8802	65	10,70	7,06	17323	86	89	514	17,40	9	75	3,30	64	76,30	51	5,40	5,50	5,20	4,10	14,20
Finland	0,70	22	1,90	25739	22335	69	14,50	1,75	36468	92	83	543	19,60	15	92	9,00	69	80,60	69	7,40	2,40	2,20	3,89	14,89
France	0,60	21	1,80	28310	46520	64	9,30	3,83	37505	93	71	497	16,40	12	81	3,50	80	82,20	67	6,60	5,00	1,10	8,96	15,33
Germany	0,90	21	1,80	28799	44938	73	8,30	2,84	39593	92	86	510	17,90	16	93	4,50	71	80,80	64	6,70	3,60	0,80	5,41	15,31
Greece	0,90	27	1,20	20440	13428	56	4,70	8,75	28011	81	65	473	18,50	31	69	6,50	62	80,70	76	5,10	3,70	1,50	5,23	14,65
Hungary	4,70	20	1,00	13858	12390	56	7,80	5,36	19437	90	81	496	17,50	15	76	7,90	47	75,00	55	4,70	3,60	1,30	3,10	14,90
Iceland	0,40	21	1,60	21201	31182	79	10,80	1,97	37290	98	67	501	19,40	16	97	5,10	85	82,40	77	7,60	2,70	0,30	13,45	14,06
Ireland	0,20	18	2,10	24104	27378	60	6,90	8,52	50109	96	73	497	17,90	12	84	9,00	70	80,60	83	7,00	2,60	1,20	3,94	15,18
Israel	3,80	21	1,10	19120	49240	61	10,50	1,13	28629	89	82	459	15,80	23	66	2,50	65	81,80	82	7,10	6,50	2,10	17,58	13,81
Italy	0,40	22	1,40	24216	55255	57	6,90	4,36	33947	86	55	486	17,10	21	71	5,00	81	82,70	64	5,80	4,70	0,90	4,07	14,89
Japan	6,40	22	1,80	24147	74966	70	10,50	1,78	35143	90	92	529	18,70	25	86	7,30	69	82,70	30	6,00	1,40	0,40	31,70	13,96
Korea	4,20	16	1,40	17337	26036	64	24,30	0,01	35406	77	80	541	17,70	33	78	10,40	76	81,10	37	6,00	2,10	2,60	27,66	14,63
Lux	0,10	23	1,90	35517	66917	65	5,40	1,41	52847	91	78	482	14,90	13	87	6,00	91	81,10	72	7,00	4,30	2,50	2,62	15,05
Mexico	4,20	18	1,00	12732	9946	60	21,40	0,11	9885	76	36	420	14,90	33	78	9,00	63	74,20	66	7,30	13,10	23,70	28,63	12,66
Nld	0,00	20	2,00	25493	66869	75	8,80	1,49	44321	94	73	519	17,80	30	90	6,10	75	81,30	76	7,50	4,90	1,10	0,66	15,66
Nzl	0,20	26	2,30	21892	33421	73	10,50	0,59	30420	93	73	524	18,20	12	88	10,30	74	81,20	89	7,20	2,20	0,90	13,02	14,87
Norway	0,30	18	2,00	31459	6905	75	7,90	0,38	43990	93	81	500	17,90	15	96	8,10	76	81,40	73	7,70	3,30	0,60	2,83	15,56
Poland	4,00	24	1,00	15371	9222	60	8,10	3,05	19806	91	89	501	18,20	34	79	10,80	55	76,90	57	5,90	1,80	1,10	7,24	14,20
Portugal	1,20	17	1,60	19366	28408	64	8,70	6,14	24384	85	32	490	18,00	20	86	6,50	58	80,80	49	5,00	5,80	1,20	8,50	14,71
Svk	1,40	25	1,20	16682	7798	59	5,00	8,65	19335	89	91	488	16,40	12	81	6,60	59	76,10	62	5,90	3,00	1,50	6,38	14,78
Slovenia	0,50	20	1,40	19119	18065	64	7,70	3,61	32480	92	83	499	18,40	26	87	10,30	66	80,10	60	6,10	3,90	0,70	5,55	14,62
Spain	0,00	20	1,80	22847	21636	58	10,90	8,99	34769	93	53	484	17,30	25	79	7,30	69	82,40	75	6,30	4,20	0,80	6,34	15,85
Sweden	0,00	21	1,70	26242	44889	74	13,90	1,29	37094	92	87	496	19,20	10	95	10,90	85	81,90	80	7,60	5,10	1,00	1,23	15,11
Che	0,10	23	1,80	30060	99209	79	8,40	1,57	50323	94	86	517	17,20	22	95	8,40	49	82,80	81	7,80	4,20	0,70	5,87	14,78
Turkey	12,70	21	0,90	13044	10524	48	25,80	2,59	19032	73	31	455	15,20	37	61	5,50	88	74,60	67	5,30	5,10	3,30	46,13	11,73
Gbr	0,10	22	1,80	26904	62965	70	6,80	2,62	44743	95	75	500	16,60	13	97	11,50	66	81,10	77	6,80	1,90	1,20	12,06	14,83
USA	0,00	19	2,30	38001	115918	67	11,40	2,80	54450	90	89	496	17,10	18	87	8,30	70	78,70	90	7,00	1,50	4,80	11,13	14,27

Table IV. Data for the year 2014

COUNTRY	DwoF 14	HsEx 14	RmPs 14	HDIn 14	HFWl 14	Empl 14	JobS 14	LUnp 14	PEar 14	QSNw 14	EdAt 14	SdSk 14	YsEd 14	AirP 14	WatQ 14	CoRl 14	VoTr 14	LfEx 14	SHth 14	LfSa 14	Aslt 14	Homd 14	EWkL 14	ToLe 14
Australia	1,1	20	2,3	31197	38482	72	4,4	1,06	46585	93	74	514	18,8	13	93	10,5	93	82	85	7,4	2,1	0,8	14,23	14,41
Austria	1	21	1,6	29256	48125	73	3,4	1,07	43837	95	82	498	16,9	27	95	7,1	75	81,1	69	7,5	3,4	0,5	8,61	14,46
Belgium	1,9	20	2,3	27811	78368	62	4,5	3,37	47276	91	71	507	18,8	21	84	4,5	89	80,5	74	7,1	6,6	1,2	4,41	15,71
Canada	0,2	22	2,5	30212	63261	72	6,6	0,9	44017	94	89	522	17	15	90	10,5	61	81	88	7,6	1,3	1,7	3,98	14,25
Chile	9,4	19	1,3	13762	18141	62	4,7	2,01	15438	85	72	439	16,4	46	79	2	88	78,3	59	6,6	6,9	5,2	15,42	14,41
Cze	0,9	25	1,4	17262	17875	67	4,2	3,03	20645	87	92	496	17,9	16	81	6,8	59	78	60	6,7	2,8	0,8	7,14	14,98
Denmark	0,4	24	2	25172	39951	73	5,8	2,11	45642	96	77	500	19,2	15	95	7	88	79,9	71	7,6	3,9	0,8	2,06	16,06
Estonia	8,6	20	1,6	14382	7843	67	5,3	5,46	17488	89	89	523	17,5	9	80	3,3	64	76,3	52	5,4	5,5	4,7	3,59	14,9
Finland	0,6	22	1,9	26904	20190	70	6,4	1,65	38976	93	84	529	19,7	15	95	9	69	80,6	69	7,4	2,4	1,8	3,7	14,89
France	0,5	21	1,8	29322	47668	64	6,5	3,98	38625	91	72	499	16,5	12	85	3,5	80	82,2	68	6,7	5	0,8	8,71	15,33
Germany	0,9	21	1,8	30721	49484	73	3,2	2,52	41782	93	86	514	18,1	16	94	4,5	72	80,8	65	7	3,6	0,5	5,6	15,31
Greece	0,5	27	1,2	19095	14004	51	12	14,37	27434	68	67	468	18,6	27	66	6,5	62	80,8	76	4,7	3,7	1,4	5,65	14,91
Hungary	4,8	21	1	15240	13652	57	6,7	5,05	20514	87	82	486	17,5	15	77	7,9	64	75	56	4,9	3,6	1,5	2,92	15,04
Iceland	0,4	21	1,6	22415	43045	80	4,3	1,68	39433	96	71	486	19,5	18	97	5,1	81	82,4	78	7,5	2,7	1,3	13,73	14,61
Ireland	0,2	20	2,1	23721	28099	59	6,4	9,24	50853	95	73	518	17,5	13	84	9	70	80,6	83	6,8	2,6	0,8	4,17	15,19
Israel	3,8	21	1,1	20434	55932	67	6,5	0,91	27577	89	83	474	15,7	21	66	2,5	68	81,8	82	7,1	6,4	2,2	18,77	14,48
Italy	0,5	23	1,4	24724	54147	58	5,5	5,67	33571	91	56	489	17	21	80	5	75	82,7	65	6	4,7	0,7	3,7	14,98
Japan	6,4	22	1,8	25066	85309	71	2,9	1,67	36039	90	93	538	16,2	24	86	7,3	59	82,7	30	6	1,4	0,3	22,62	14,93
Korea	4,2	16	1,4	18035	28290	64	3	0,01	34056	77	81	537	17,5	30	78	10,4	76	81,1	37	6	2,1	1,1	27,13	14,63
Lux	0,7	23	2	35635	57159	66	4	1,56	52542	88	77	487	14,1	12	81	6	91	81,1	73	7,1	4,3	2,1	3,18	15,12
Mexico	4,2	21	1	12850	10449	61	4,7	0,09	14653	74	36	417	15,2	30	68	9	63	74,4	66	7,4	12,8	23,4	28,77	13,89
Nld	0	21	2	25697	71073	75	3,6	1,78	45362	92	72	522	18,6	30	94	6,1	75	81,3	76	7,4	4,9	0,9	0,59	15,44
Nzl	0,2	25	2,3	21773	7480	72	5,8	0,91	31394	96	74	511	18,1	11	89	10,3	74	81,2	89	7,3	2,2	1,9	13,07	14,87
Norway	0,3	17	2	32093	8365	76	2,9	0,28	46618	93	82	498	17,9	16	96	8,1	78	81,4	73	7,7	3,3	2,3	3,1	15,56
Poland	3,5	23	1	16234	10406	60	7,3	3,51	21140	89	89	520	18,3	33	77	10,8	55	76,9	58	5,7	1,4	1	7,58	14,2
Portugal	0,9	18	1,6	18806	29640	62	9,1	7,62	23419	85	35	488	17,8	18	87	6,5	58	80,8	50	5,2	5,7	0,9	9,31	14,95
Svk	1,1	25	1,2	17228	9651	60	5,8	8,89	20428	88	91	469	16,4	13	82	6,6	59	76,1	63	5,9	3	1,2	6,48	14,99
Slovenia	0,4	20	1,4	19692	18912	64	5	4,23	33040	93	84	497	18,3	26	90	10,3	66	80,1	61	6	3,9	0,4	5,72	14,62
Spain	0	20	1,9	22799	23920	56	17,7	11,13	34747	92	54	490	17,6	24	75	7,3	69	82,4	75	6,2	4,2	0,7	5,95	16,06
Sweden	0	21	1,7	27546	55301	74	6,5	1,4	38789	91	87	484	19,2	10	97	10,9	85	81,9	80	7,4	5,1	1	1,14	15,11
Che	0,1	23	1,9	30745	100812	79	2,8	1,48	52307	94	86	515	17,1	20	95	8,4	49	82,8	81	7,8	4,2	0,5	7,3	14,98
Turkey	12,7	21	1,1	13794	3317	49	7,8	2,29	17460	79	32	462	16	35	60	5,5	88	74,6	67	4,9	5	3,3	43,29	13,42
Gbr	0,3	24	1,9	25828	60065	71	5,6	2,75	40649	94	77	505	16,6	13	92	11,5	66	81,1	78	6,9	1,9	0,3	12,27	14,83
USA	0,1	19	2,3	39531	132822	67	6,3	2,36	54214	90	89	494	17,1	18	87	8,3	67	78,7	90	7	1,5	5,2	11,44	14,27

Table V. Data for the year 2015

COUNTRY	DwoF 15	HsEx 15	RmPs 15	HDIn 15	HFWl 15	Empl 15	JobS 15	LUnp 15	PEar 15	QSNw 15	EdAt 15	SdSk 15	YsEd 15	AirP 15	WatQ 15	CoRl 15	VoTr 15	LfEx 15	SHth 15	LfSa 15	Aslt 15	Homd 15	EWkL 15	ToLe 15
Australia	1,10	20	2,30	31588	47657	72	4,80	1,08	50449	92	76	512	19,40	13	91	10,50	93	82,10	85	7,30	2,10	0,80	14,02	14,41
Austria	1,00	21	1,60	31173	49887	72	3,90	1,19	45199	89	83	500	17,00	27	94	7,10	75	81,00	69	6,90	3,40	0,40	7,61	14,46
Belgium	2,00	21	2,20	28307	83876	62	5,00	3,88	48082	94	72	509	18,90	21	87	4,50	89	80,50	74	6,90	6,60	1,10	4,57	15,71
Canada	0,20	21	2,50	29365	67913	72	6,40	0,90	46911	92	89	522	17,20	15	91	10,50	61	81,50	89	7,30	1,30	1,50	3,94	14,25
Chile	9,40	18	1,20	14533	17733	62	4,40	1,59	22101	86	57	436	16,50	46	73	2,00	49	78,90	59	6,70	6,90	4,40	15,42	14,41
Cze	0,90	26	1,40	18404	17299	68	4,10	3,12	20338	85	92	500	18,10	16	85	6,80	59	78,20	60	6,50	2,80	0,80	6,98	14,98
Denmark	0,90	24	1,90	26491	44488	73	5,60	1,78	48347	95	78	498	19,40	15	94	7,00	88	80,10	72	7,50	3,90	0,30	2,03	16,06
Estonia	8,10	19	1,50	15167	7680	68	5,20	3,82	18944	89	90	526	17,50	9	79	3,30	64	76,50	54	5,60	5,50	4,80	3,30	14,90
Finland	0,60	22	1,90	27927	18761	69	6,90	1,73	40060	95	85	529	19,70	15	94	9,00	69	80,70	65	7,40	2,40	1,40	3,58	14,89
France	0,50	21	1,80	28799	48741	64	6,50	3,99	40242	87	73	500	16,40	12	82	3,50	80	82,10	67	6,50	5,00	0,60	8,15	15,33
Germany	0,10	21	1,80	31252	50394	73	3,10	2,37	43682	94	86	515	18,20	16	95	4,50	72	81,00	65	7,00	3,60	0,50	5,25	15,31
Greece	0,70	25	1,20	18575	14579	49	12,20	18,39	25503	83	68	466	18,60	27	69	6,50	64	80,70	74	4,80	3,70	1,60	6,16	14,91
Hungary	4,80	20	1,10	15442	13277	58	5,70	5,10	20948	87	82	487	17,60	15	77	7,90	62	75,20	57	4,90	3,60	1,30	3,19	15,04
Iceland	0,40	24	1,50	23965	43045	82	4,10	1,18	55716	96	71	484	19,80	18	97	5,10	81	83,00	77	7,50	2,70	0,30	12,25	14,61
Ireland	0,20	19	2,10	23917	31580	60	5,90	8,39	49506	96	75	516	17,60	13	80	9,00	70	81,00	82	7,00	2,60	0,80	4,20	15,19
Israel	3,70	21	1,20	22104	52933	67	5,00	0,79	28817	87	85	474	15,80	21	68	2,50	68	81,80	80	7,40	6,40	2,30	16,03	14,48
Italy	1,10	24	1,40	25166	54987	56	5,90	6,94	34561	90	57	490	16,80	21	71	5,00	75	82,30	66	6,00	4,70	0,70	3,66	14,98
Japan	6,40	22	1,80	26111	86764	72	2,40	1,67	35405	89	94	540	16,30	24	85	7,30	53	83,20	30	5,90	1,40	0,30	22,26	14,93
Korea	4,20	16	1,40	19510	29091	64	3,20	0,01	36354	72	82	542	17,50	30	78	10,40	76	81,30	35	5,80	2,10	1,10	18,72	14,63
Lux	0,10	21	2,00	38951	61765	66	4,30	1,78	56021	87	78	490	15,10	12	86	6,00	91	81,50	72	6,90	4,30	0,40	3,47	15,12
Mexico	4,20	21	1,00	13085	9056	61	4,90	0,08	16193	77	37	417	14,40	30	67	9,00	63	74,60	66	6,70	12,80	23,40	28,83	13,89
Nld	0,00	19	2,00	27888	77961	74	4,50	2,40	47590	90	73	519	18,70	30	92	6,10	75	81,20	76	7,30	4,90	0,90	0,45	15,44
Nzl	0,20	23	2,40	23815	28290	73	5,10	0,75	35609	94	74	509	18,10	11	89	10,30	77	81,50	90	7,30	2,20	1,20	13,87	14,87
Norway	0,30	17	2,00	33492	8797	75	3,10	0,32	50282	94	82	496	17,90	16	94	8,10	78	81,50	76	7,40	3,30	0,60	2,82	15,56
Poland	3,20	21	1,10	17852	10919	60	7,30	3,77	22655	91	90	521	18,40	33	79	10,80	55	76,90	58	5,80	1,40	0,90	7,41	14,20
Portugal	0,90	19	1,60	20086	31245	61	8,60	9,11	23688	86	38	488	17,60	18	86	6,50	58	80,50	46	5,10	5,70	1,10	9,62	14,95
Svk	0,60	26	1,10	17503	8663	60	5,50	9,46	20307	90	92	472	16,30	13	81	6,60	59	76,20	66	6,10	3,00	1,20	7,02	14,99
Slovenia	0,50	20	1,50	19326	18465	63	5,50	5,15	32037	90	85	499	18,40	26	88	10,30	52	80,20	65	5,70	3,90	0,40	5,63	14,62
Spain	0,10	22	1,90	22477	24774	56	17,80	12,96	34824	95	55	490	17,60	24	71	7,30	69	82,50	72	6,50	4,20	0,60	5,89	16,06
Sweden	0,00	20	1,70	29185	60328	74	6,50	1,37	40818	92	88	482	19,30	10	95	10,90	86	81,80	81	7,20	5,10	0,70	1,13	15,11
Che	0,00	22	1,80	33491	108823	80	3,00	1,46	54236	96	86	518	17,30	20	96	8,40	49	82,80	81	7,50	4,20	0,50	6,72	14,98
Turkey	12,70	21	1,10	14095	3251	50	8,10	2,37	16919	86	34	462	16,40	35	62	5,50	88	74,60	68	5,60	5,00	1,20	40,86	13,42
Gbr	0,20	23	1,90	27029	60778	71	5,20	2,77	41192	91	78	502	16,40	13	88	11,50	66	81,00	74	6,80	1,90	0,30	12,70	14,83
USA	0,10	18	2,40	41355	145769	67	5,90	1,91	56340	90	89	492	17,20	18	85	8,30	68	78,70	88	7,20	1,50	5,20	11,30	14,27

ANNEX C – Correlation coefficients between variables and compromise axes

Table VI. Linear correlation coefficients between variables and each compromise axis (1, 2, 3, 4, 5, 6 and 7)

Dwellings without basic facilities							
DwoF	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**-0,803**	0,105	-0,356	0,177	0,005	0,072	0,243
2012	**-0,766**	0,052	-0,347	0,131	-0,112	0,103	0,239
2013	**-0,768**	0,113	-0,347	0,164	-0,101	0,120	0,200
2014	**-0,762**	0,151	-0,341	0,187	-0,109	0,112	0,205
2015	**-0,766**	0,159	-0,328	0,209	-0,087	0,119	0,175

Housing expenditure							
HsEx	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	**Axis 6**	Axis 7
2012	0,158	-0,304	0,078	-0,323	-0,129	**-0,348**	-0,255
2013	0,162	-0,343	0,086	-0,245	-0,110	**-0,443**	-0,326
2014	0,063	-0,289	0,186	-0,329	-0,107	**-0,477**	-0,287
2015	0,031	-0,309	0,241	-0,250	-0,074	**-0,339**	-0,335

Rooms per person							
RmPS	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**0,834**	0,201	0,130	0,146	0,142	-0,016	0,135
2012	**0,841**	0,228	0,082	0,151	0,147	-0,056	0,132
2013	**0,827**	0,162	0,059	0,126	0,132	-0,001	0,214
2014	**0,812**	0,176	0,089	0,174	0,152	-0,008	0,235
2015	**0,815**	0,169	0,068	0,180	0,179	-0,071	0,229

Household net adjusted disposable income							
HDIn	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**0,814**	0,198	0,199	0,247	-0,103	-0,212	0,175
2012	**0,819**	0,173	0,194	0,263	-0,098	-0,200	0,166
2013	**0,840**	0,231	0,155	0,221	-0,092	-0,185	0,155
2014	**0,839**	0,261	0,111	0,211	-0,118	-0,148	0,186
2015	**0,841**	0,290	0,075	0,189	-0,144	-0,134	0,172

Household net financial wealth							
HFWl	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,546	0,379	0,019	0,278	-0,491	-0,284	0,071
2012	0,564	0,369	0,021	0,281	-0,468	-0,281	0,089
2013	0,576	0,368	0,000	0,276	-0,427	-0,299	0,122
2014	0,556	0,351	-0,019	0,268	-0,456	-0,244	0,115
2015	0,595	0,359	-0,014	0,257	-0,395	-0,260	0,118

Employment rate							
Empl	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**0,798**	0,224	-0,208	-0,247	-0,011	0,203	-0,215
2012	**0,801**	0,218	-0,193	-0,240	-0,024	0,187	-0,226
2013	**0,779**	0,251	-0,266	-0,270	-0,036	0,232	-0,138
2014	**0,729**	0,313	-0,316	-0,308	-0,121	0,237	-0,079
2015	**0,705**	0,314	-0,343	-0,316	-0,117	0,220	-0,047

Job security							
JobS	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2012	-0,311	0,366	-0,428	0,227	0,519	-0,010	0,122
2013	-0,407	0,507	-0,361	0,194	0,484	0,065	0,103
2014	-0,235	-0,394	0,520	0,248	0,296	-0,247	-0,168
2015	-0,215	-0,374	0,536	0,276	0,335	-0,203	-0,184

Long-term unemployment rate							
LUnp	Axis 1	**Axis 2**	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	-0,280	**-0,709**	0,421	0,117	-0,100	-0,065	0,256
2012	-0,284	**-0,706**	0,421	0,122	-0,083	-0,065	0,256
2013	-0,264	**-0,716**	0,469	0,117	-0,067	-0,100	0,109
2014	-0,228	**-0,694**	0,523	0,171	0,006	-0,169	-0,091
2015	-0,223	**-0,661**	0,534	0,209	0,022	-0,184	-0,197

Personal earnings							
PEar	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2012	**0,859**	0,239	0,084	0,276	-0,010	-0,124	0,068
2013	**0,860**	0,202	0,082	0,312	-0,034	-0,097	0,103
2014	**0,879**	0,227	0,087	0,248	-0,014	-0,061	0,111
2015	**0,878**	0,299	0,061	0,199	-0,007	0,017	0,058

Quality of support network							
QSNw	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**0,808**	0,079	0,219	-0,282	0,044	-0,060	-0,075
2012	**0,828**	-0,192	0,142	-0,268	-0,124	0,126	-0,004
2013	**0,853**	-0,190	0,092	-0,187	-0,085	0,042	-0,029
2014	**0,748**	-0,054	-0,038	-0,112	-0,062	0,153	0,094
2015	**0,657**	-0,193	0,220	-0,078	0,041	0,059	0,001

Educational attainment							
EdAt	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,494	-0,262	-0,462	-0,340	-0,380	-0,056	0,134
2012	0,502	-0,248	-0,469	-0,325	-0,396	-0,078	0,156
2013	0,505	-0,264	-0,457	-0,332	-0,397	-0,079	0,129
2014	0,512	-0,277	-0,467	-0,325	-0,391	-0,075	0,109
2015	0,551	-0,314	-0,467	-0,302	-0,330	-0,130	0,147

Student skills							
SdSk	Axis 1	Axis 2	**Axis 3**	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,612	-0,289	**-0,503**	0,238	0,223	0,055	0,100
2012	0,663	-0,338	**-0,516**	0,146	0,140	0,084	0,132
2013	0,663	-0,338	**-0,516**	0,146	0,140	0,084	0,132
2014	0,617	-0,330	**-0,517**	0,238	0,038	0,051	0,152
2015	0,587	-0,343	**-0,534**	0,236	0,011	0,047	0,168

Table VII. Linear correlation coefficients between variables and each compromise axis (1, 2, 3, 4, 5, 6 and 7) (cont.)

Years in education							
YsEd	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2012	0,533	-0,462	-0,125	-0,117	0,309	0,345	-0,177
2013	0,485	-0,422	-0,231	-0,005	0,275	0,346	-0,255
2014	0,404	-0,367	-0,067	-0,079	0,429	0,402	-0,239
2015	0,468	-0,359	-0,092	-0,015	0,400	0,376	-0,219

Air pollution							
AirP	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	**Axis 7**
2011	-0,606	0,257	-0,066	0,199	-0,227	0,155	**-0,460**
2012	-0,611	0,257	-0,062	0,196	-0,224	0,158	**-0,453**
2013	-0,598	0,292	-0,107	0,223	-0,139	0,127	**-0,474**
2014	-0,575	0,277	-0,121	0,233	-0,130	0,140	**-0,468**
2015	-0,575	0,277	-0,121	0,233	-0,130	0,140	**-0,468**

Water quality							
WatQ	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2012	**0,752**	0,079	-0,150	-0,146	0,062	0,278	-0,049
2013	**0,784**	0,123	-0,155	-0,302	0,095	0,197	-0,077
2014	**0,826**	0,019	-0,175	-0,202	0,038	0,329	-0,025
2015	**0,834**	0,012	-0,230	-0,236	0,029	0,267	-0,012

Consultation on rule-making							
CoRl	Axis 1	Axis 2	Axis 3	Axis 4	**Axis 5**	Axis 6	Axis 7
2012	0,301	-0,041	-0,343	-0,230	**0,595**	-0,351	-0,113
2013	0,301	-0,041	-0,343	-0,230	**0,595**	-0,351	-0,113
2014	0,301	-0,041	-0,343	-0,230	**0,595**	-0,351	-0,113
2015	0,301	-0,041	-0,343	-0,230	**0,595**	-0,351	-0,113

Voter turnout							
VoTr	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2012	0,271	0,340	0,304	0,403	0,112	0,294	0,104
2013	0,187	0,446	0,138	0,394	0,160	0,366	0,024
2014	0,136	0,393	0,196	0,345	0,237	0,414	0,130
2015	0,308	0,281	0,221	0,333	0,423	0,174	0,266

Life expectancy							
LfEx	**Axis 1**	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	**0,702**	0,189	0,072	0,346	-0,127	0,054	-0,423
2012	**0,682**	0,169	0,082	0,373	-0,136	0,079	-0,409
2013	**0,722**	0,057	0,067	0,393	-0,128	0,097	-0,388
2014	**0,719**	0,062	0,071	0,390	-0,126	0,095	-0,392
2015	**0,724**	0,078	0,044	0,372	-0,133	0,103	-0,391

Self-reported health							
SHth	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,543	0,384	0,382	-0,059	0,264	-0,209	-0,041
2012	0,527	0,295	0,490	-0,186	0,193	-0,330	-0,027
2013	0,498	0,305	0,494	-0,152	0,239	-0,361	-0,048
2014	0,502	0,292	0,504	-0,160	0,234	-0,358	-0,039
2015	0,492	0,282	0,485	-0,206	0,226	-0,334	-0,019

Life satisfaction							
LfSa	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,698	0,550	0,122	-0,159	0,047	-0,019	-0,122
2012	0,682	0,583	0,039	-0,127	0,045	0,115	-0,066
2013	0,663	0,599	0,062	-0,285	0,062	0,094	-0,107
2014	0,679	0,590	0,055	-0,318	0,012	0,129	-0,058
2015	0,667	0,555	0,089	-0,228	0,026	0,075	-0,024

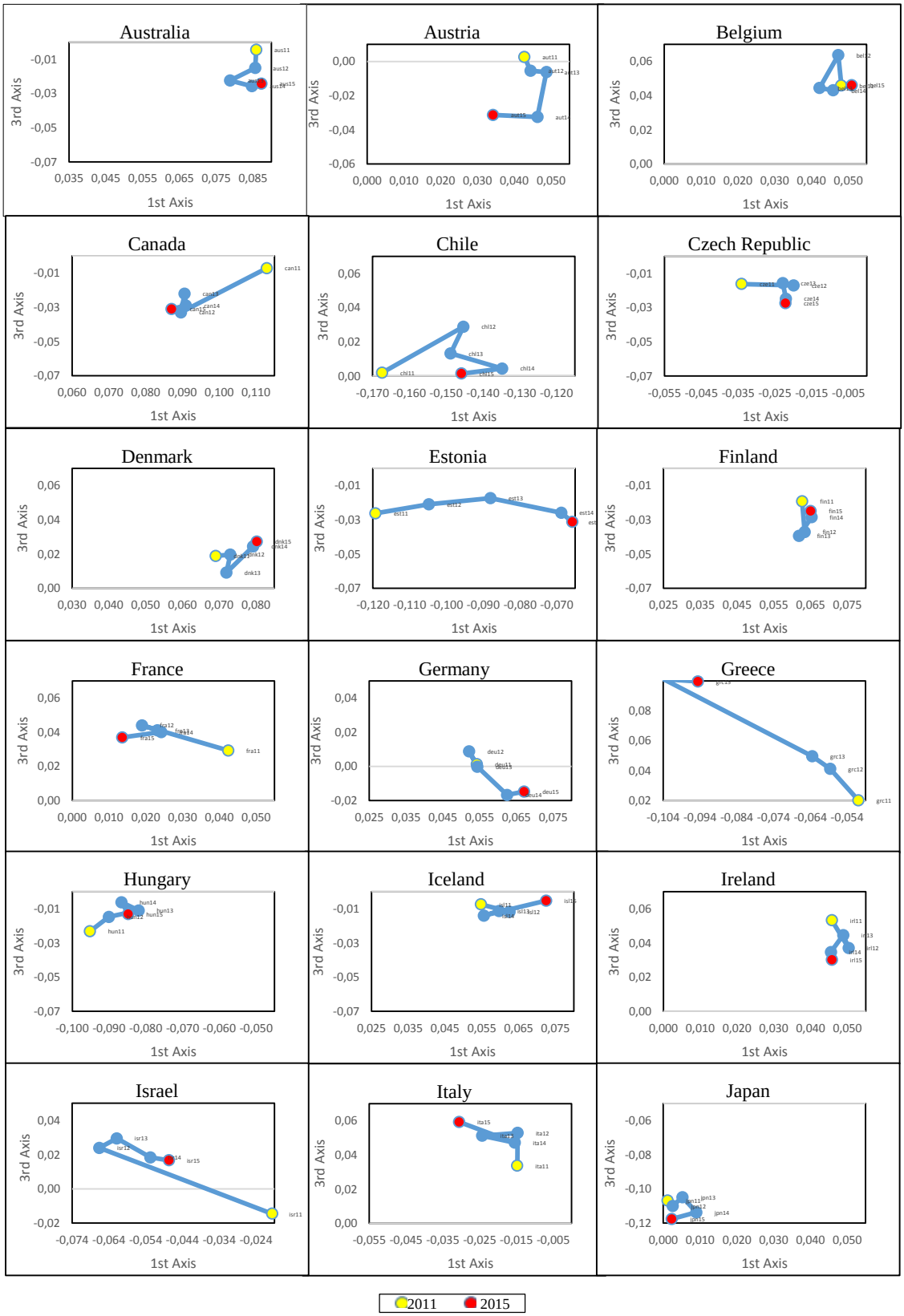
Assault rate							
Aslt	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	-0,601	0,415	0,404	-0,231	-0,031	0,355	0,083
2012	-0,564	0,420	0,464	-0,152	-0,182	0,395	0,015
2013	-0,568	0,455	0,454	-0,206	-0,118	0,337	0,040
2014	-0,539	0,452	0,471	-0,199	-0,097	0,321	0,067
2015	-0,539	0,452	0,471	-0,199	-0,097	0,321	0,067

Homicide rate							
Homd	Axis 1	Axis 2	Axis 3	**Axis 4**	Axis 5	Axis 6	Axis 7
2011	-0,579	0,483	0,095	**-0,340**	-0,038	0,022	0,279
2012	-0,528	0,550	0,119	**-0,373**	0,131	-0,073	0,249
2013	-0,524	0,542	0,139	**-0,400**	0,130	-0,063	0,200
2014	-0,514	0,575	0,162	**-0,420**	0,125	-0,037	0,166
2015	-0,501	0,528	0,161	**-0,441**	0,094	-0,050	0,153

Employees working very long hours							
EWkL	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	-0,501	0,409	-0,435	0,361	0,132	-0,276	-0,074
2012	-0,517	0,442	-0,424	0,311	0,162	-0,266	-0,048
2013	-0,576	0,456	-0,407	0,327	0,137	-0,197	-0,066
2014	-0,592	0,497	-0,357	0,289	0,180	-0,214	-0,072
2015	-0,607	0,502	-0,290	0,241	0,179	-0,250	-0,072

Time devoted to leisure and personal care							
ToLe	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7
2011	0,469	-0,267	0,105	0,310	0,291	0,261	0,318
2012	0,348	-0,281	0,356	0,309	0,280	0,271	0,218
2013	0,684	-0,413	0,305	0,039	-0,030	0,329	0,054
2014	0,490	-0,401	0,386	0,085	-0,101	0,431	0,078
2015	0,490	-0,401	0,386	0,085	-0,101	0,431	0,078

ANNEX D – Countries' trajectories in the plan [1, 3]



Countries' trajectories in the plan [1, 3] (cont.)